2005 STANDARD DRAWINGS

Part 5

http://www.udot.utah.gov/index.php/m=c/tid=1091

Change 6, Issued March 2, 2006

Because of file size the 2005 Standard Drawings have been split into six files. The contents of each part are listed below.

Part 1

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Sheets 1B and 1C
AT Series Drawings
BA Series Drawings

Part 2

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CC Series Drawings
DB Series Drawings

Part 3

DD Series Drawings
DG Series Drawings
EN Series Drawings

Part 4

FG Series Drawings
GF Series Drawings
GW Series Drawings

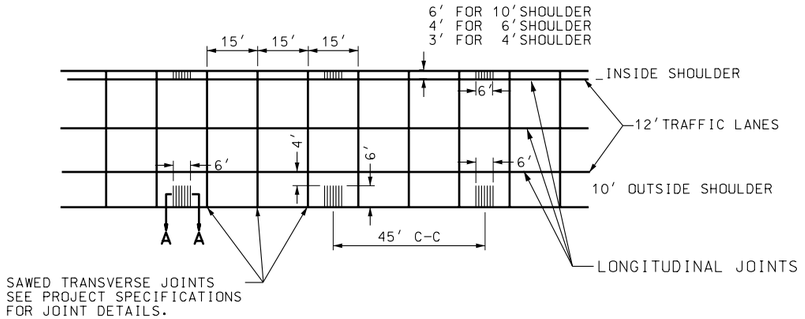
Part 5

PV Series Drawings
SL Series Drawings
SN Series Drawings

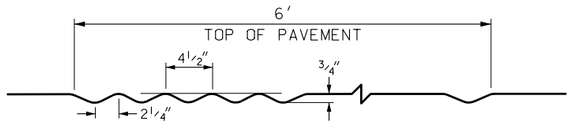
Part 6

ST Series Drawings
SW Series Drawings
TC Series Drawings

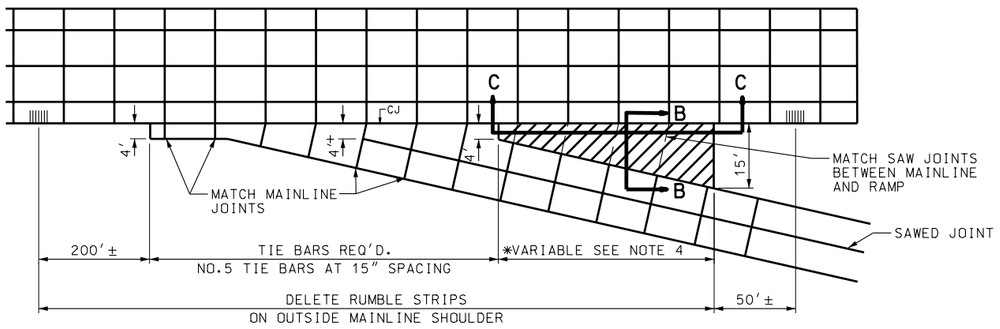
JOINTS FOR HIGHWAYS WITH CONCRETE TRAFFIC LANES AND SHOULDERS



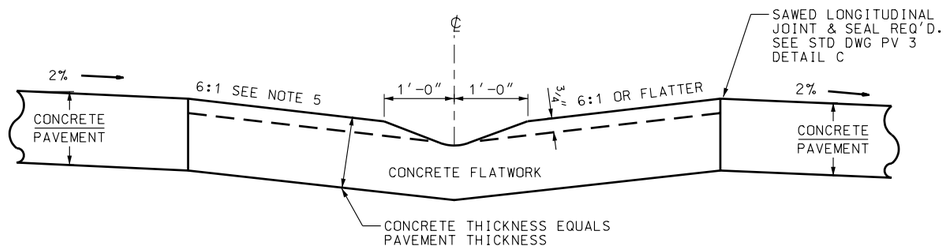
TYPICAL JOINT LOCATION AND RUMBLE STRIP DETAIL



SECTION A-A URBAN AND/OR RURAL



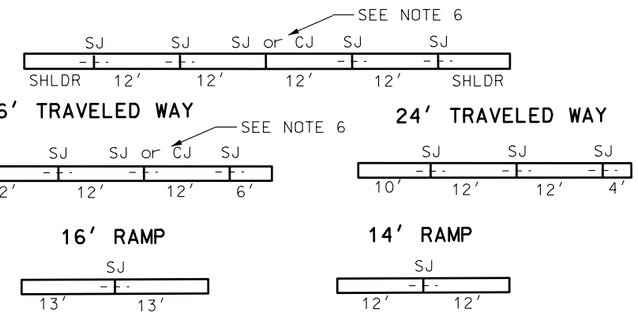
SHOULDER TRANSITION FOR RAMPS RAMP GORE PAVING DETAIL



SECTION B-B

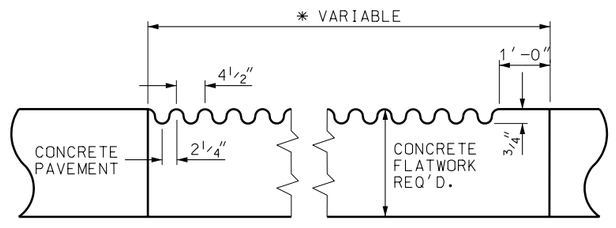
NOTES:

1. DO NOT PLACE RUMBLE STRIPS OVER STRUCTURES.
2. IN FORMING THE RUMBLE STRIP REMOVE EXCESS MATERIAL SUCH THAT THERE IS NO PROJECTION OF THE CONCRETE ABOVE THE FINISH GRADE OF THE PAVEMENT.
3. RUMBLE STRIPS NOT REQUIRED WHERE CONCRETE CURB & GUTTER IS PLACED.
4. ESTIMATED QUANTITIES FOR CONCRETE FLATWORK ARE CALCULATED ON TANGENT SECTION. IN ALL CASES LENGTH OF GORE PAVING WILL BE CARRIED AHEAD UNTIL THE DISTANCE BETWEEN PAVING IS 15′.
5. SLOPE MAY VARY TO MEET DESIGN CONDITIONS ON RAMP AND MAINLINE. GRADE TO DRAIN, ADJUST FOR FIELD CONDITIONS. CORRUGATIONS NORMAL TO MAINLINE.
6. CONTACT JOINT (CJ) TIE BARS REQUIRED AT ALL LOCATIONS WHERE CONCRETE IS TO BE EXTENDED SEE STD DWG PV 3 AND PV 4 FOR JOINS DETAILS.



REQUIRED PAVING CONFIGURATIONS

CJ - CONTACT JOINT
SJ - SAW JOINT



SECTION C-C

REVISIONS				
NO.	DATE	APPR.	REMARKS	

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — CHAIRMAN STANDARDS COMMITTEE — JAN.01.2005 DATE
APPROVED — DEPUTY DIRECTOR — JAN.01.2005 DATE

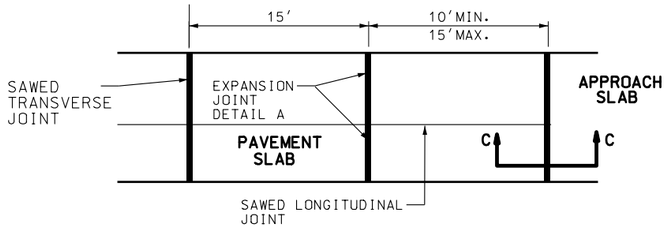
JOINTS FOR HIGHWAYS WITH CONCRETE TRAFFIC LANES AND SHOULDERS

STANDARD DRAWING TITLE

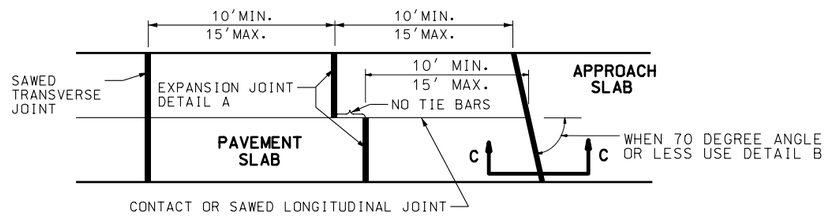
STD DWG
PV 1

DGN File:N:\Eas\Standard_Drawings\Imperial\2005Approved\Paving (PV)\pv01.dgn
15-DEC-2004

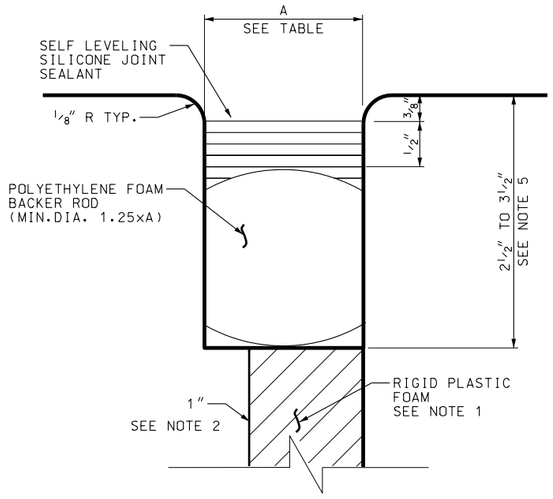
PAVEMENT / APPROACH SLAB DETAILS



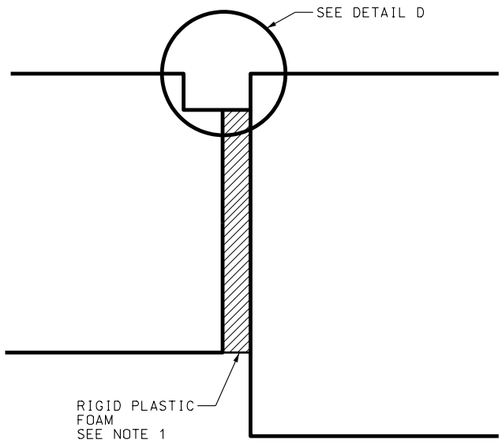
NORMAL APPROACH SLAB



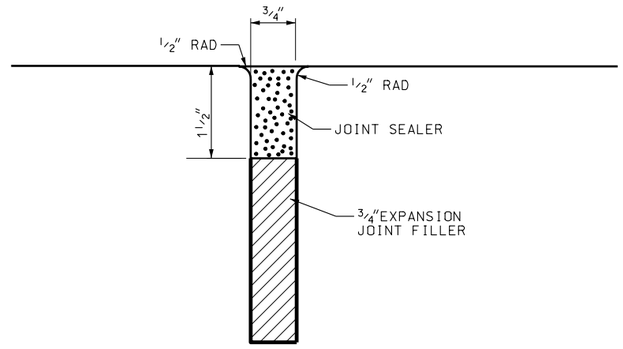
SKEWED APPROACH SLAB



DETAIL "D"



SECTION C-C

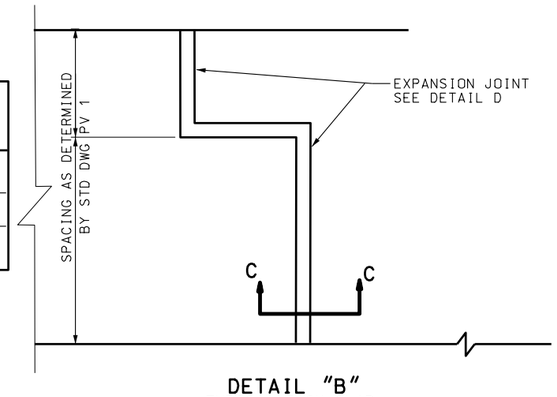


DETAIL "A"
(EXPANSION JTS.)

APPROACH SLAB JOINT WIDTH (inch)

TEMPERATURE (DEG F)	DIMENSION A (FOR BRIDGES GREATER THAN 250' LENGHT)	DIMENSION A (FOR ALL OTHER BRIDGES)
90	1 1/4	1 1/4
60	1 3/4	1 1/2
35	2	1 3/4

SEE NOTE 3



DETAIL "B"
TYPICAL EACH SLAB

NOTES:

1. USE CLOSED CELL,RIGID PLASTIC FOAM. CUT RIGID PLASTIC FOAM TO CONFORM TO THE CROSS SECTION OF THE PAVEMENT AND FURNISH IN STRIPS EQUAL TO THE WIDTH OF THE PAVEMENT SLAB. MAKE THE TOP SURFACE SMOOTH. PROVIDE A SNUG FIT WITHOUT LOSS IN THICKNESS OF THE MATERIAL.
2. FOR BRIDGES GREATER THAN 250 feet LENGTH, USE 1 1/2" FOR TEMPERATURES LESS THAN 50°F. AT TIME OF ROADWAY PAVING.
3. DO NOT INSTALL JOINT SEALANT ABOVE 90°F. OR BELOW 50°F.
4. FOR STEPPED END APPROACH SLABS, APPLY DETAIL D ALONG LONGITUDINAL EDGES OF STEP. HOWEVER, DO NOT PLACE DOWELS ALONG LONGITUDINAL EDGES.
5. DEPTH TO BE DETERMINED BY CONTRACTOR BASE ON ACTUAL COMPRESSED BACKER ROD HEIGHT.

REVISIONS

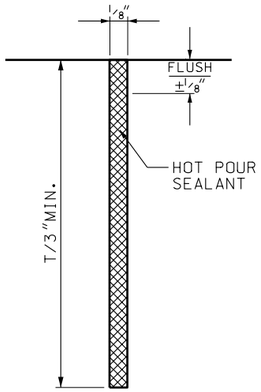
NO.	DATE	APPR.	REMARKS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

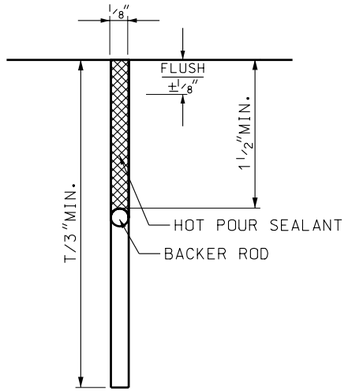
RECOMMENDED FOR APPROVAL — JAN.01.2005 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — JAN.01.2005 DATE
DEPUTY DIRECTOR

PAVEMENT/APPROACH SLAB DETAILS
STANDARD DRAWING TITLE

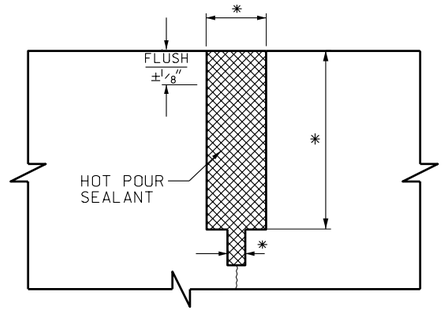
STD DWG
PV 2



DETAIL "A"



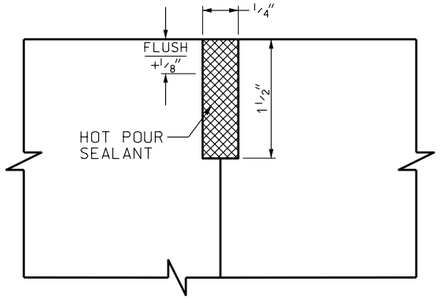
DETAIL "B"
OPTIONAL INSTALLATION



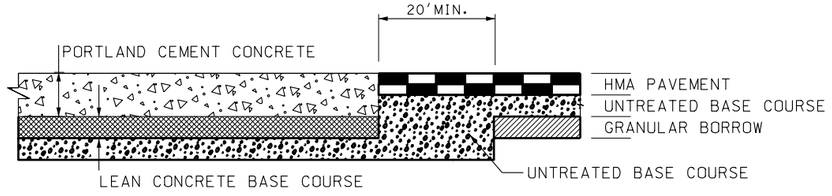
DETAIL "D"

EXISTING SILICONE JOINT
REHAB DETAIL

* ALL DIMENSIONS AS PER
EXISTING PAVEMENT



DETAIL "C"



CONCRETE TO FLEXIBLE
PAVEMENT TRANSITION
DETAIL "E"

REVISIONS

NO.	DATE	APPR.	REMARKS

UTAH DEPARTMENT OF TRANSPORTATION

STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

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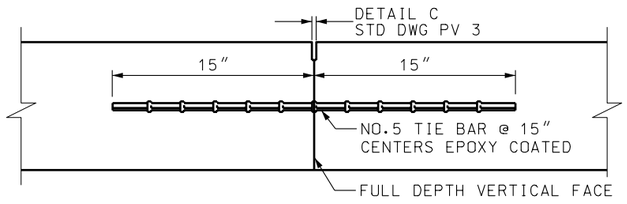
CHAIRMAN STANDARDS COMMITTEE
APPROVED — JAN.01.2005 DATE
DEPUTY DIRECTOR

CONCRETE PAVEMENT DETAILS FOR URBAN AND INTERSTATE

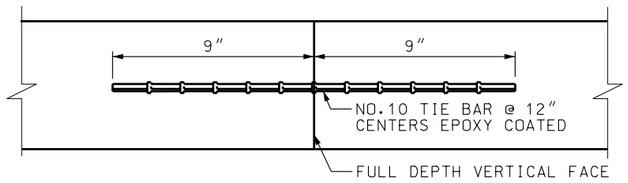
STANDARD DRAWING TITLE

STD DWG
PV 3

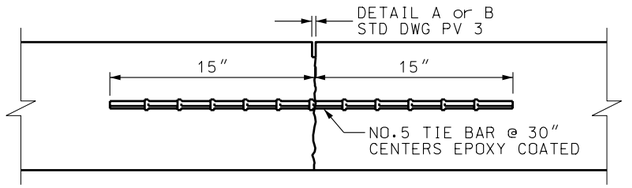
DGN File:N:\Eng\Standard_Drawings\Imperial\2005\Approved\Paving (PV)\pv03.dgn
15-DEC-2004



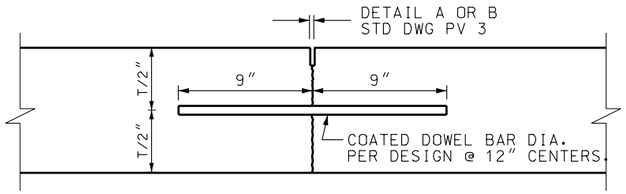
LONGITUDINAL CONTACT JOINT (CJ)
DETAIL "A"



CONTACT JOINT
DETAIL "B"
FOR MID PANEL REPLACEMENT

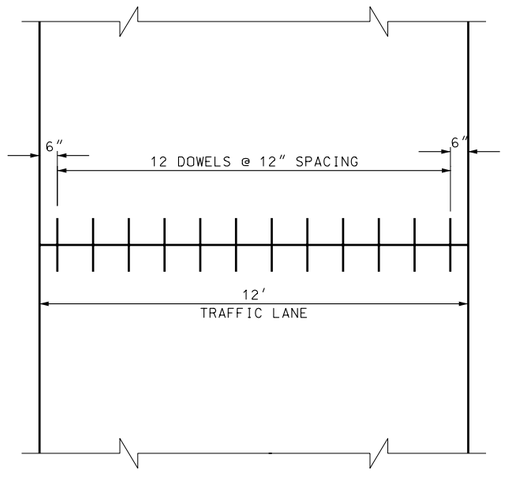


SAWED LONGITUDINAL JOINT
DETAIL "C"



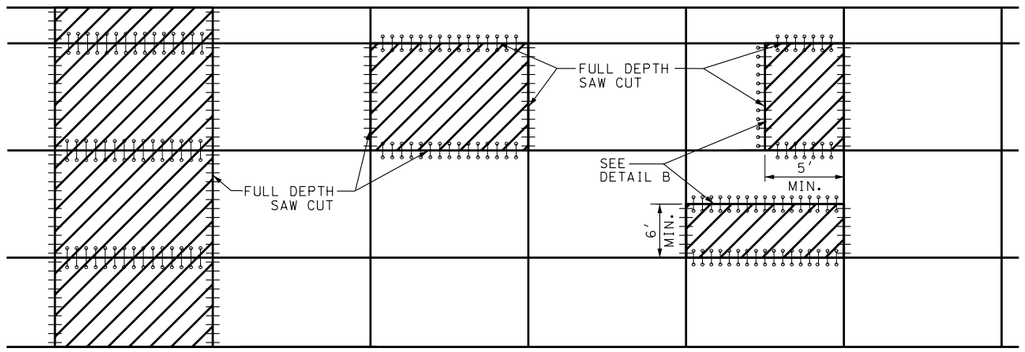
LOAD TRANSFER DOWEL BAR PLACEMENT
TRANSVERSE JOINT
DETAIL "D"

PROVIDE DOWEL BARS PARALLEL TO THE CENTERLINE AND TO THE PAVEMENT SURFACE ($\frac{1}{4}$") LIMIT TO $\frac{1}{4}$" DEVIATIONS FROM PARALLEL IN THE LENGTH OF THE DOWEL±BARS.



LOAD TRANSFER DOWEL BAR LAYOUT

TYPICAL PAVEMENT PANEL REPLACEMENT



FULL WIDTH REPLACEMENT

— DOWEL BARS @ 12" O.C.
⊶ TIE BARS
@ 15" O.C. FOR CONTACT JT.
@ 30" O.C. FOR SAWED JT.

FULL PANEL REPLACEMENT

— DOWEL BARS @ 12" O.C.
⊶ TIE BARS @ 15" O.C.

PARTIAL PANEL REPLACEMENT

⊶ TIE BARS @ 15" O.C.
— DOWEL BARS @ 12" O.C.
⊶ TIE BARS @ 12" O.C.

DOWELS - EPOXY COATED

SMOOTH BAR $1\frac{1}{4}$" x 18"

TIE BARS - EPOXY COATED

LONGITUDINAL SAWED	NO.5 x 30" DEFORMED REBAR
LONGITUDINAL CONTACT	NO.5 x 18" " "
TRANSVERSE	NO.10 x 18" " "

O.C. = ON CENTER

REVISIONS

NO.	DATE	APPR.	REMARKS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — JAN.01.2005 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — JAN.01.2005 DATE
DEPUTY DIRECTOR

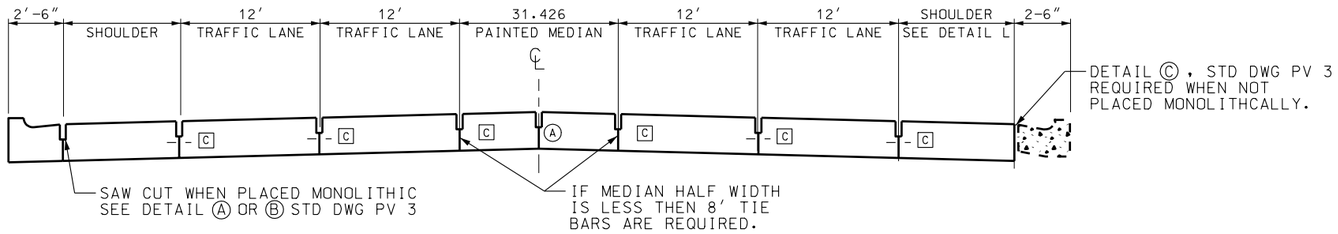
CONCRETE PAVEMENT
DETAILS FOR URBAN
AND INTERSTATE

STANDARD DRAWING TITLE

STD DWG
PV 4

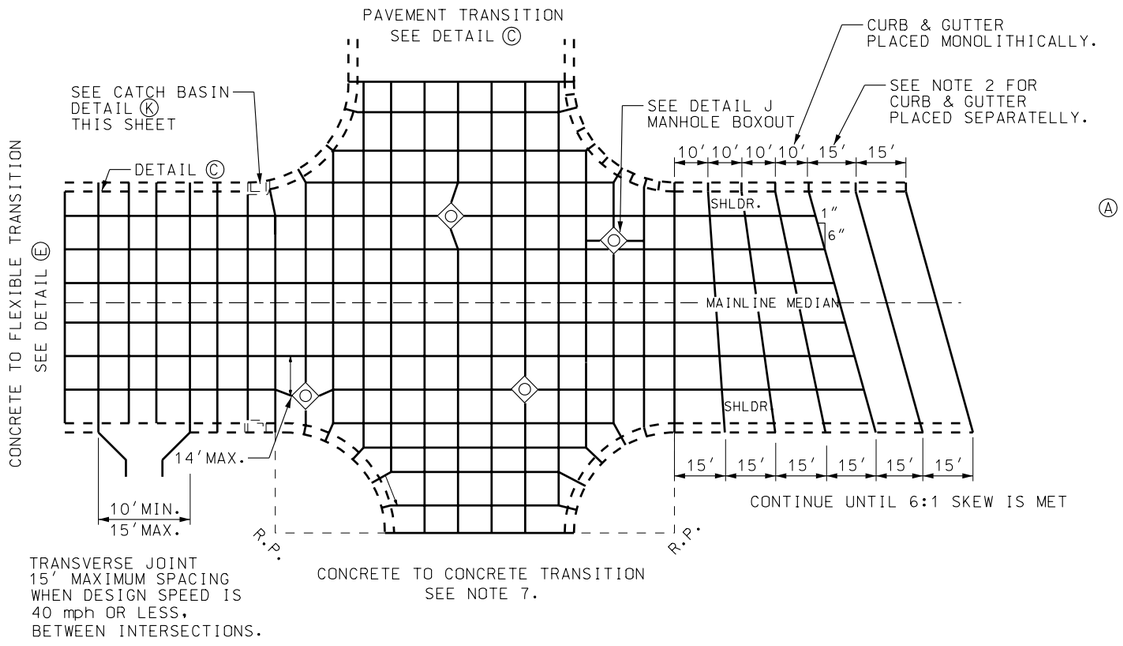
DGN File:N:\Eng\Standard Drawings\Imperial\2005\Approved\Paving (PV)\pv04.dgn
15-DEC-2004

CONCRETE PAVEMENT DETAILS

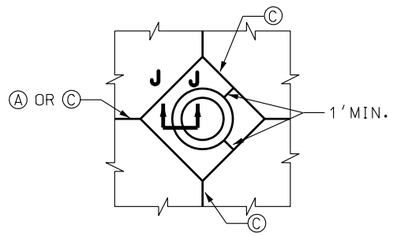


NOTES:

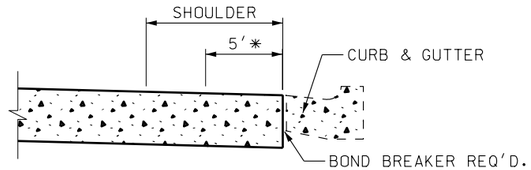
1. CURB & GUTTER JOINTS TO BE CONTINUOUS WITH PAVEMENT WHEN PLACED MONOLITHICALLY WITH PAVEMENT.
2. CURB & GUTTER JOINTS NORMAL TO THE FLOWLINE AND AT ONE HALF THE PAVEMENT JOINT SPACING, WHEN PLACED SEPARATELLY FROM THE PAVEMENT.
3. WHERE CONCRETE PAVEMENT IS PLACED AGAINST EXISTING CURB & GUTTER, DRIVEWAYS AND WALKWAYS PLACE A BOND BREAKER AS SHOWN IN DETAIL L AND SECTION K-K
4. REFER TO PROJECT SPECIFICATIONS FOR JOINT INFORMATION AND DETAILS.
5. PREFERRED TRANSVERSE JOINT LOCATIONS ARE: MORE THAN 5′ FROM LARGE APPURTENANCES WITH NO BOXOUT: OR AT THE CORNER OF RECTANGULAR BOXOUTS OR APPURTENANCES.
6. WHEN A JOINT FALLS WITHIN 5′ OF OR CONTACTS BASINS, MANHOLES, OR OTHER STRUCTURES, SHORTEN ONE OR MORE PANELS EITHER SIDE OF OPENING TO PERMIT JOINT TO FALL AT CORNERS OF RECTANGULAR STRUCTURES.
7. DETAIL C REQ′D. WHEN CROSS STREET IS CONCRETE AND AT STRUCTURES.
8. SEE STD DWG GW 3 FOR CURG & GUTTERS DETAILS.
9. SEE STD DWG GW 6 FOR DRIVEWAY DETAILS.
10. LETTER INSIDE ◯ DENOTES DETAIL, STD DWG PV 3
11. LETTER INSIDE □ DENOTES DETAIL, STD DWG PV 4



INTERSECTION JOINT LAYOUT

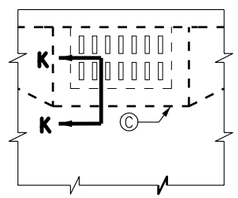


MANHOLE BOXOUT
DETAIL J

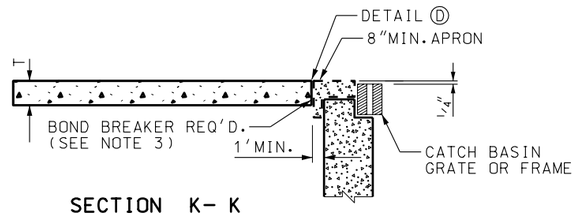


DETAIL L

SECTION J- J



CATCH BASIN
DETAIL K



SECTION K- K

NO.	DATE	APPR.	REMARKS

REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

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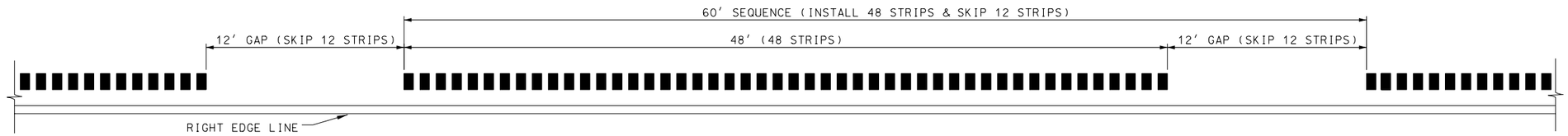
APPROVED — JAN.01.2005 DATE
DEPUTY DIRECTOR

URBAN CONCRETE PAVEMENT DETAILS

STANDARD DRAWING TITLE

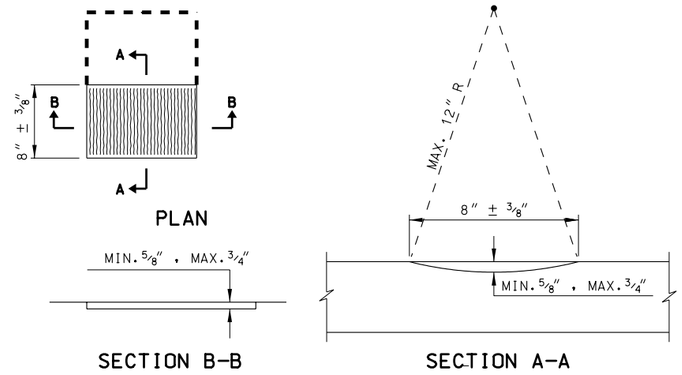
STD DWG
PV 5

DGN File:N:\East\Standard Drawings\Imperial\2005Approved\Paving (PV)\pv05.dgn
15-DEC-2004

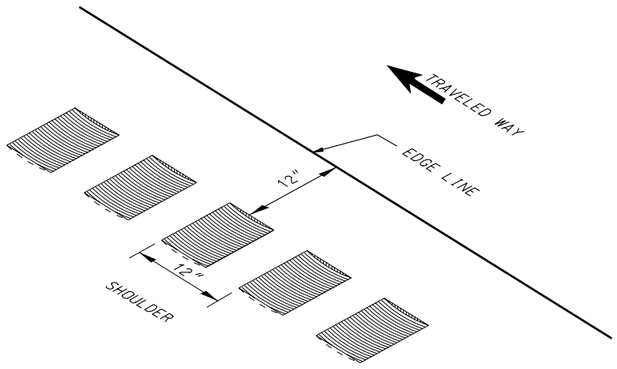


TYPICAL GAPPING DETAIL

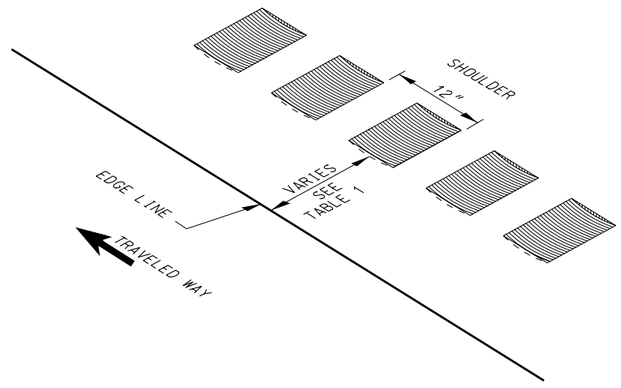
TABLE 1 LONGITUDINAL RUMBLE STRIP APPLICATION			
ROADWAY TYPE	RIGHT SHOULDER WIDTH (RSW)	GROOVE WIDTH (BOTH SHOULDERS)	LOCATION OF RIGHT SHOULDER STRIP
UNDIVIDED	< 4′	6″	EDGE LINE
UNDIVIDED	≥ 4′	8″	12″ OFFSET FROM EDGE LINE
DIVIDED	< 6′	8″	EDGE LINE OR 4″ OFFSET
DIVIDED	≥ 6′	12″	12″ OFFSET FROM EDGE LINE



RUMBLE STRIP DETAILS



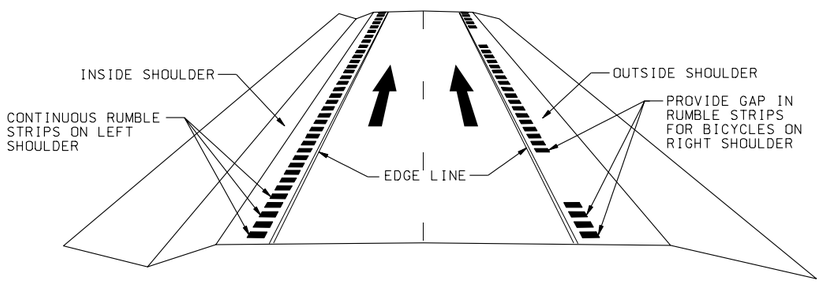
TYPICAL SHOULDER INSTALLATION
LEFT SHOULDER DETAIL



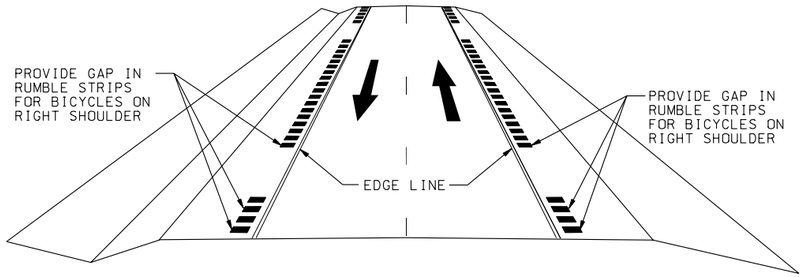
TYPICAL SHOULDER INSTALLATION
RIGHT SHOULDER DETAIL

NOTES:

1. MILL RUMBLE STRIPS TO LEAVE A RECTANGULAR SHAPE WITH UNIFORM EDGES. DO NOT DAMAGE ADJACENT PAVEMENT DURING MILLING OPERATION.
2. DO NOT PLACE RUMBLE STRIPS ON STUCTURES OR APPROACH SLABS.
3. RESTART RUMBLE STRIP SEQUENCE (48 STRIPS, SKIP 12 STRIPS) WHEN RUMBLE STRIPS ARE HALTED OR INTERRUPTED.



PERSPECTIVE VIEW (MULTI–LANE ROADWAY)



PERSPECTIVE VIEW (TWO–LANE ROADWAY)

REVISIONS

NO.	DATE	APPR.	REMARKS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
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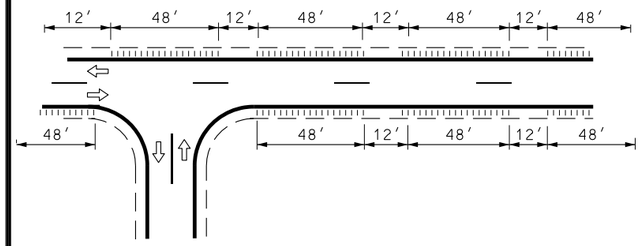
CHAIRMAN STANDARDS COMMITTEE APPROVED — JAN.01.2005 — DATE
DEPUTY DIRECTOR

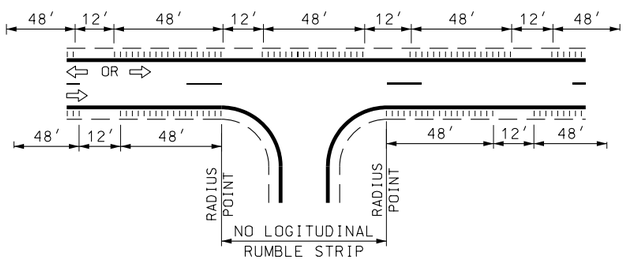
STANDARD DRAWING TITLE
RUMBLE STRIPS

STD DWG
PV 6

DGN File:N:\Eng\Standard Drawings\Imperial\2005Approved\Paving (PV)\pv06.dgn
15-DEC-2004

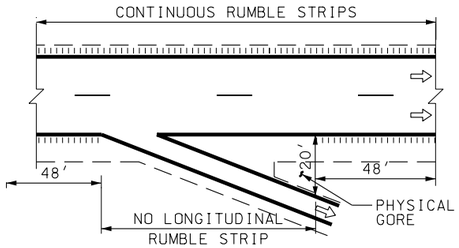


INSTALLATION ON
HIGHWAYS WITH NO ACCESS CONTROL
(SEE NOTE 4)

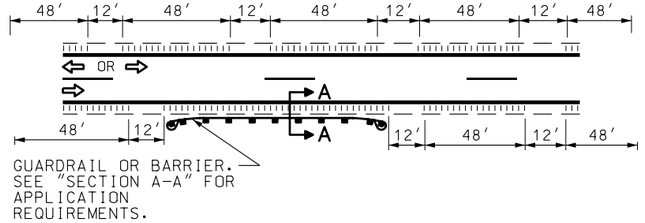


TYPICAL HEAVY USE DRIVEWAY
OR CROSSROAD EXCEPTION DETAIL

USE CONTINUOUS RUMBLE STRIP ON
LEFT SHOULDER IN ONE WAY TRAFFIC
SITUATIONS.

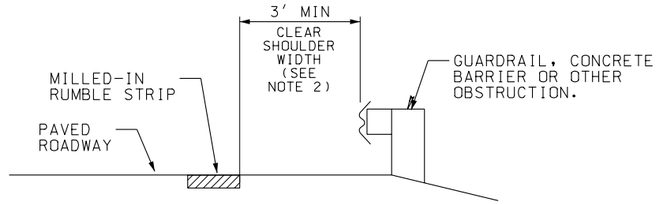


RAMP EXCEPTION DETAIL
ENTRANCE RAMP SIMILAR



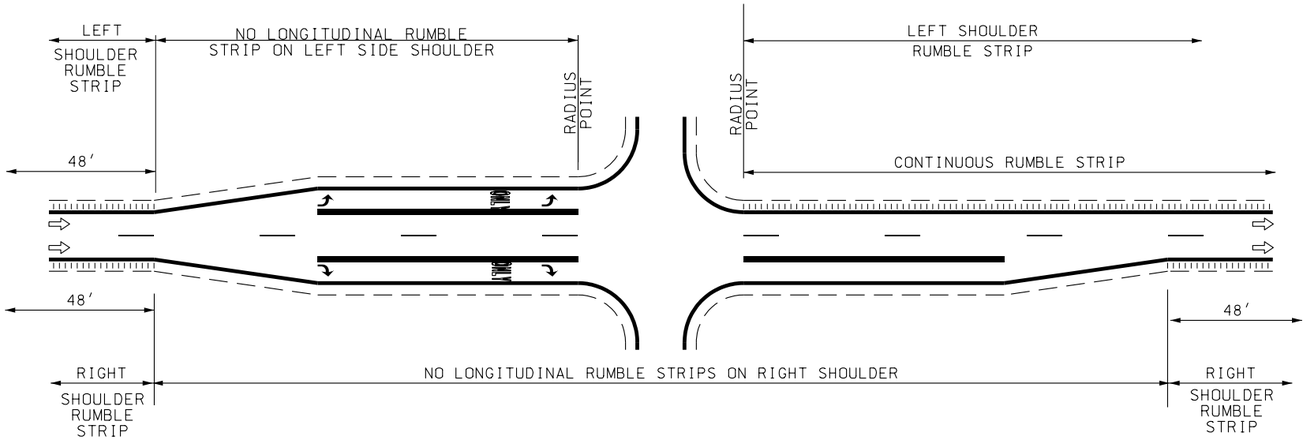
TYPICAL GUARDRAIL AND/OR BARRIER

USE CONTINUOUS RUMBLE STRIP ON
LEFT SHOULDER IN ONE WAY TRAFFIC
SITUATIONS.



SECTION A-A
ROADSIDE BARRIER EXCEPTION

SEE NOTE 3



TYPICAL INTERSECTION, TURN LANE &
ACCELERATION LANE EXCEPTION DETAIL

NOTES:

1. OMIT RUMBLE STRIPS ACROSS PRINCIPAL INTERSECTING ROADWAYS AS PER DETAILS.
2. IF BICYCLE TRAFFIC EXISTS OR IS ANTICIPATED THEN PROVIDE A MINIMUM EFFECTIVE CLEAR SHOULDER WIDTH OF 3 FEET. APPLY THIS REQUIREMENT TO BOTH SHOULDERS OF UNDIVIDED HIGHWAYS AND THE RIGHT SHOULDER ONLY ON DIVIDED HIGHWAYS.
3. MAINTAIN 3 FEET MINIMUM CLEAR SHOULDER WIDTH BETWEEN OBSTRUCTION AND INSIDE EDGE OF RUMBLE STRIP, OTHERWISE ELIMINATE RUMBLE STRIP.
4. ON HIGHWAY WITH NO ACCESS CONTROL PLACE RUMBLE STRIP AS PER STD DWG PV 6.

NO.	DATE	APPR.	REMARKS
			REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — JAN.01.2005 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — JAN.01.2005 DATE
DEPUTY DIRECTOR

RUMBLE STRIPS -
TYPICAL APPLICATION

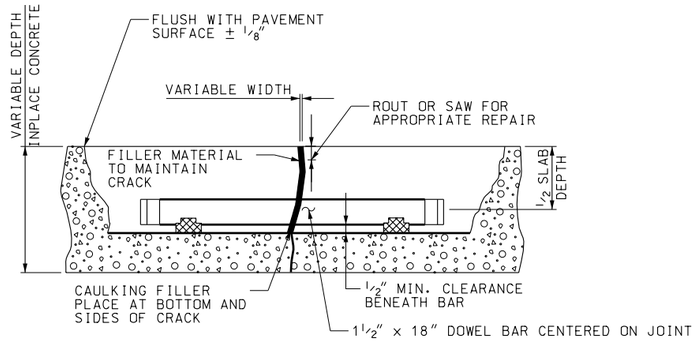
STANDARD DRAWING TITLE

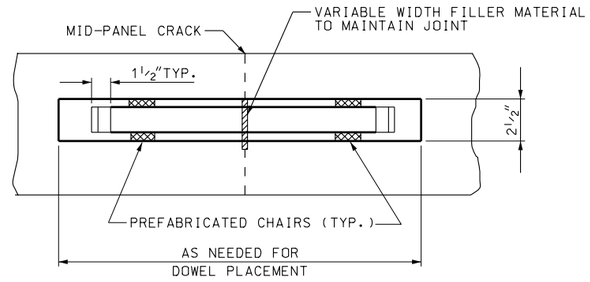
STD DWG
PV 7

DGN File:N:\Esa\Standard_Drawings\Imperial\2005Approved\Paving (PV)\pv07.dgn
15-DEC-2004

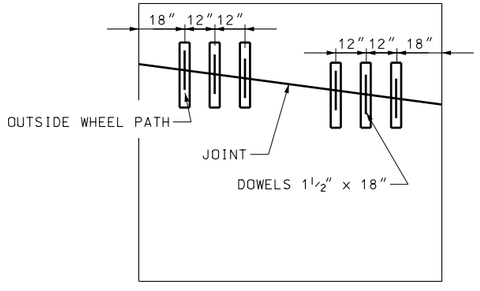
DOWEL BAR RETROFIT

DESCRIPTION: THIS REPAIR IS INTENDED TO BE USED TO ESTABLISH/RESTORE LOAD TRANSFER AT JOINTS





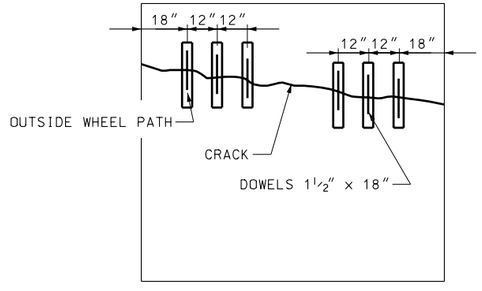
TYPICAL RETROFIT DOWEL LAYOUT (FOR JOINT)



TYPICAL LANE

PROVIDE DOWEL BARS PARALLEL TO THE CENTERLINE AND TO THE PAVEMENT SURFACE.
LIMIT DEVIATIONS FROM PARALLEL TO 1/4" IN THE LENGTH OF THE DOWEL BARS.

TYPICAL RETROFIT DOWEL LAYOUT (FOR MID-PANEL CRACK)



REVISIONS

NO.	DATE	APPR.	REMARKS
NEW DRAWING			

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

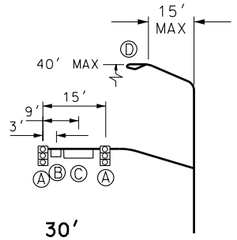
RECOMMENDED FOR APPROVAL — JAN.01.2005 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — JAN.01.2005 DATE
DEPUTY DIRECTOR

DOWEL BAR RETROFIT
STANDARD DRAWING TITLE

STD DWG
PV 9

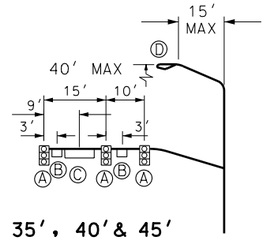
DGN File:N:\Esd\StandardDrawings\Imperial\2005Approved\Pavmg (PV)\pv09.dgn
15-DEC-2004

DESIGN INFORMATION

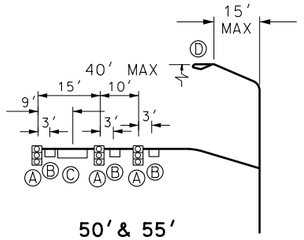


30′ MAST ARM

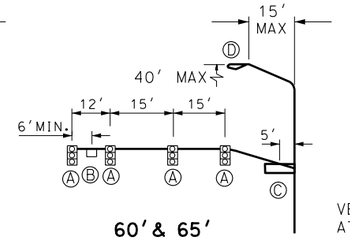
FIELD CUT END OF MAST ARM IF 25′ MAST ARM LENGTH IS REQUIRED. REQUISITION 35′/ 40′ MAST ARM HARDWARE KIT FOR CORRECT SIZE END CAP.



35′, 40′& 45′ MAST ARMS

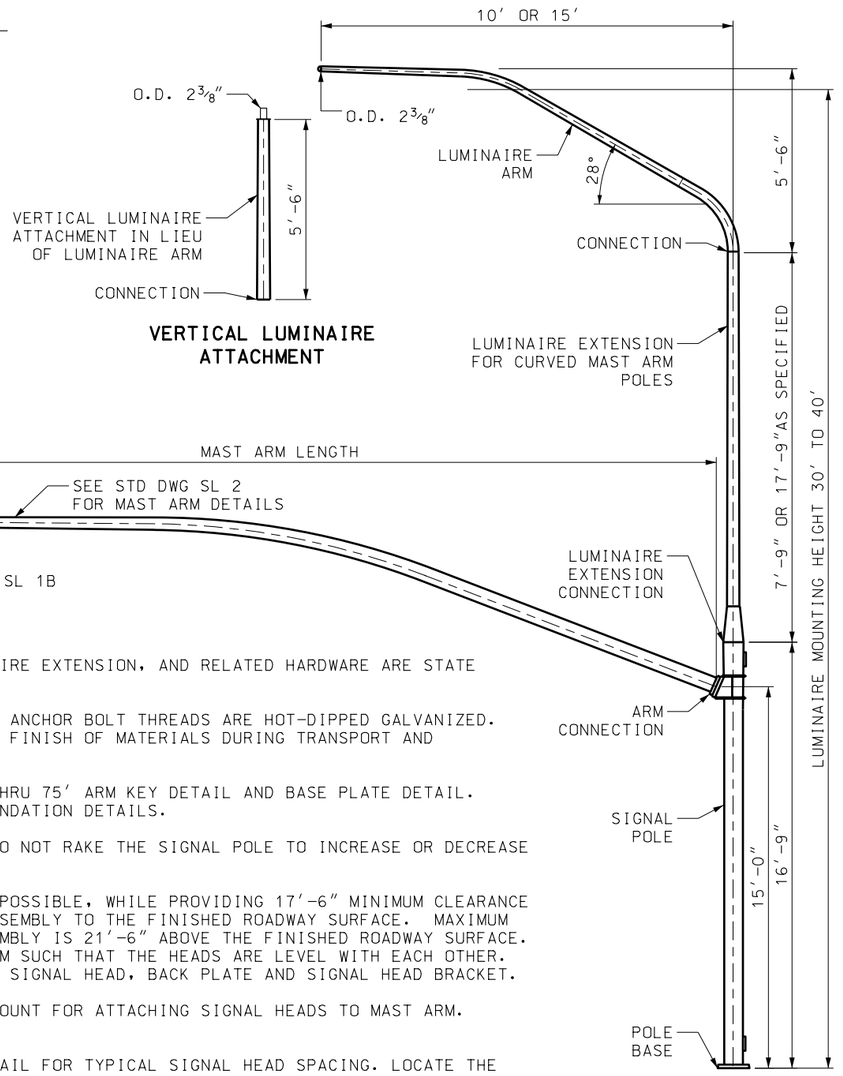


50′& 55′ MAST ARMS



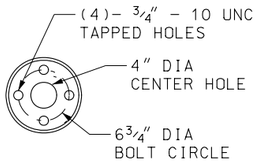
60′& 65′ MAST ARMS

DEVICE		DESCRIPTION/SIZE	PROJECTED AREA (SF)	WEIGHT(LBS)
Ⓐ	SIGNAL	12″, 3-SECTION WITH BACK PLATE	8.7	55
Ⓑ	SIGN	REGULATORY 24″ x 30″	5.0	20
Ⓒ	SIGN	STREET NAME 22″ x 96″ (MAX)	10.7	43
Ⓓ	LUMINAIRE	ROADWAY LUMINAIRE	3.3	65

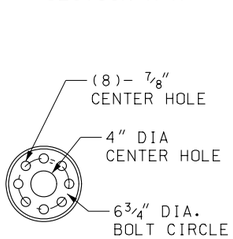


VERTICAL LUMINAIRE ATTACHMENT

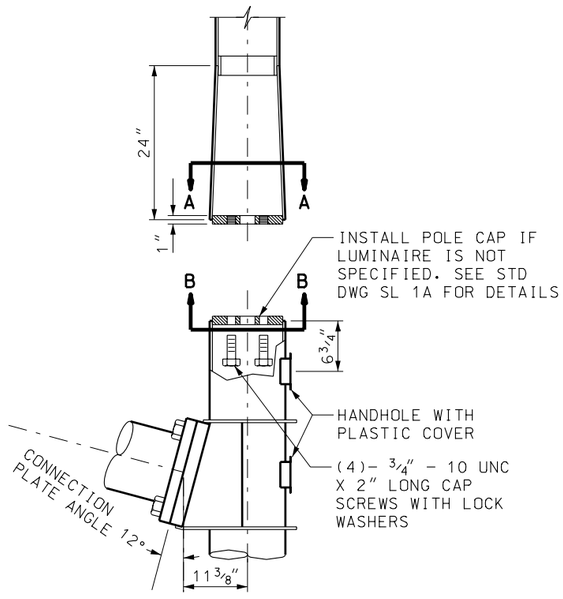
SEE STD DWG SL 4 FOR FOUNDATION REQUIREMENTS



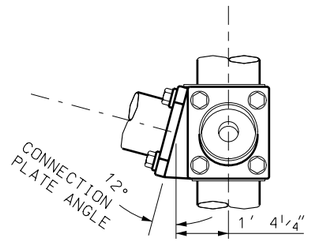
SECTION A-A



SECTION B-B



30′ THRU 65′ ARM POLE EXTENSION AND CONNECTION DETAIL



30′ THRU 45′ DUAL ARM POLE CONNECTION DETAIL

NOTES:

1. SIGNAL POLE, MAST ARM, LUMINAIRE EXTENSION, AND RELATED HARDWARE ARE STATE FURNISHED ITEMS.
2. ALL STEEL MATERIALS INCLUDING ANCHOR BOLT THREADS ARE HOT-DIPPED GALVANIZED. AVOID DAMAGING THE GALVANIZED FINISH OF MATERIALS DURING TRANSPORT AND PLACEMENT.
3. REFER TO STD DWG 1B FOR 50′ THRU 75′ ARM KEY DETAIL AND BASE PLATE DETAIL. REFER TO STD DWG SL 4 FOR FOUNDATION DETAILS.
4. INSTALL SIGNAL POLE PLUMB. DO NOT RAKE THE SIGNAL POLE TO INCREASE OR DECREASE SIGNAL HEAD CLEARANCE.
5. PLACE SIGNAL HEADS AS LOW AS POSSIBLE, WHILE PROVIDING 17′-6″ MINIMUM CLEARANCE FROM BOTTOM OF SIGNAL HEAD ASSEMBLY TO THE FINISHED ROADWAY SURFACE. MAXIMUM ELEVATION OF SIGNAL HEAD ASSEMBLY IS 21′-6″ ABOVE THE FINISHED ROADWAY SURFACE. PLACE SIGNAL HEADS ON MAST ARM SUCH THAT THE HEADS ARE LEVEL WITH EACH OTHER. SIGNAL HEAD ASSEMBLY INCLUDES SIGNAL HEAD, BACK PLATE AND SIGNAL HEAD BRACKET.
6. PROVIDE SIGNAL HEAD BRACKET MOUNT FOR ATTACHING SIGNAL HEADS TO MAST ARM. SEE STD DWG SL 2 FOR DETAILS.
7. FOLLOW DESIGN INFORMATION DETAIL FOR TYPICAL SIGNAL HEAD SPACING. LOCATE THE CENTER OF END SIGNAL HEAD 1′ FROM THE END OF MAST ARM. FOR NON-TYPICAL INSTALLATIONS PROVIDE NO LESS THAN 8′- 0″ MINIMUM SPACING BETWEEN SIGNAL HEADS. DO NOT LOAD MAST ARM MORE AGGRESSIVELY THAN SHOWN WITHOUT CHECKING WITH MANUFACTURER.
8. INSTALL POLE CAP ON TOP OF SIGNAL POLE IF LUMINAIRE EXTENSION IS NOT USED. SEE STD DWG SL 1B FOR DETAIL.

STATE FURNISHED ITEMS	
ITEM	**CONTENTS**
MAST ARM SIGNAL POLE WITH HARDWARE KIT	MAST ARM SIGNAL POLE, CONNECTION BOLTS, PLASTIC HANDHOLE COVERS, POLE CAP, AND SCREWS
DUAL MAST ARM SIGNAL POLE WITH HARDWARE KIT	MAST ARM SIGNAL POLE, CONNECTION BOLTS, PLASTIC HANDHOLE COVERS, POLE CAP, AND SCREWS
MAST ARM WITH HARDWARE KIT	MAST ARM, END CAP AND SCREWS, AND THRU BOLT (FOR TWO-PIECE ARMS)
LUMINAIRE EXTENSION WITH HARDWARE KIT	LUMINAIRE EXTENSION, CONNECTION BOLTS, WASHERS, AND NUTS
LUMINAIRE ARM OR VERTICAL ATTACHMENT	LUMINAIRE ARM OR VERTICAL ATTACHMENT

NO.	DATE	APPR.	REMARKS
1	02/23/06	L.M.	ENTIRE DRAWING REVISED.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — FEB.23.2006 DATE — DEPUTY DIRECTOR

CHAIRMAN STANDARDS COMMITTEE APPROVED — FEB.23.2006 DATE

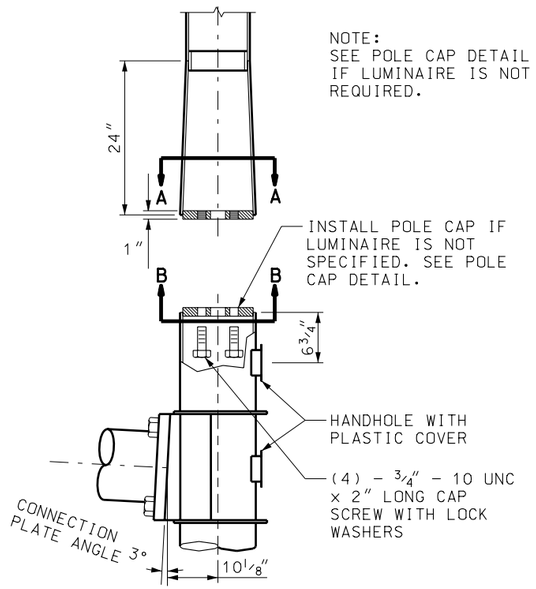
TRAFFIC SIGNAL MAST ARM POLE AND LUMINAIRE EXTENSION

STANDARD DRAWING TITLE

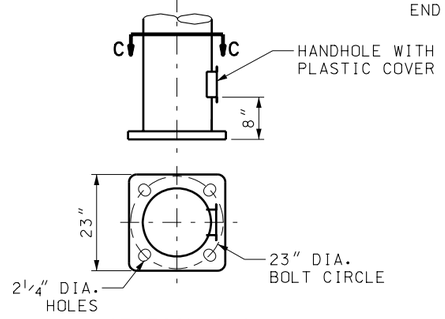
STD DWG SL 1A

DGN File:L:\Standard Drawings\Imperial\2005Approved\Change6Approved\sl01A.dgn

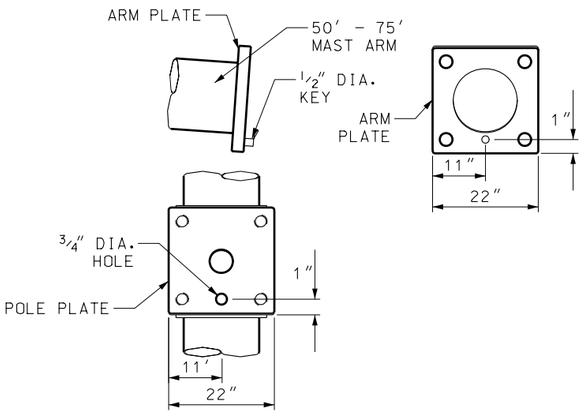
01-MAR-2006



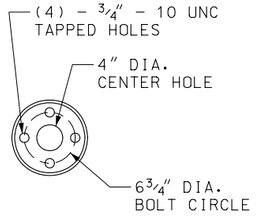
70′ THRU 75′ ARM POLE EXTENSION AND CONNECTION DETAIL



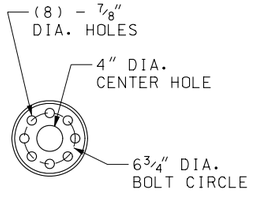
SECTION C–C
TYPICAL BASE PLATE DETAIL



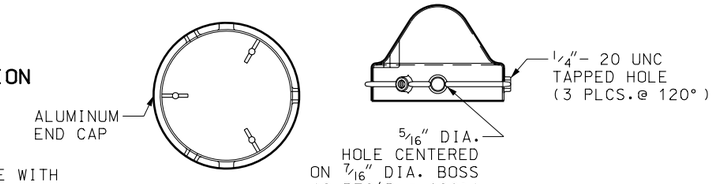
50′ THRU 75′ ARM AND POLE KEY DETAIL



SECTION A–A

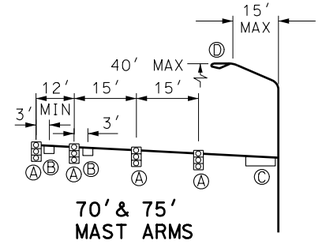


SECTION B–B



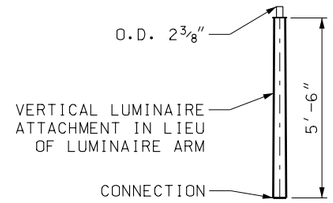
ARM END CAP DETAIL

DESIGN INFORMATION

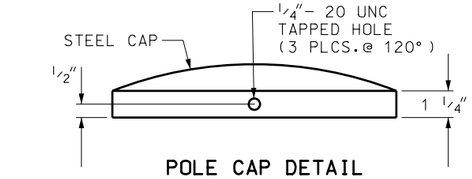


70′ & 75′ MAST ARMS

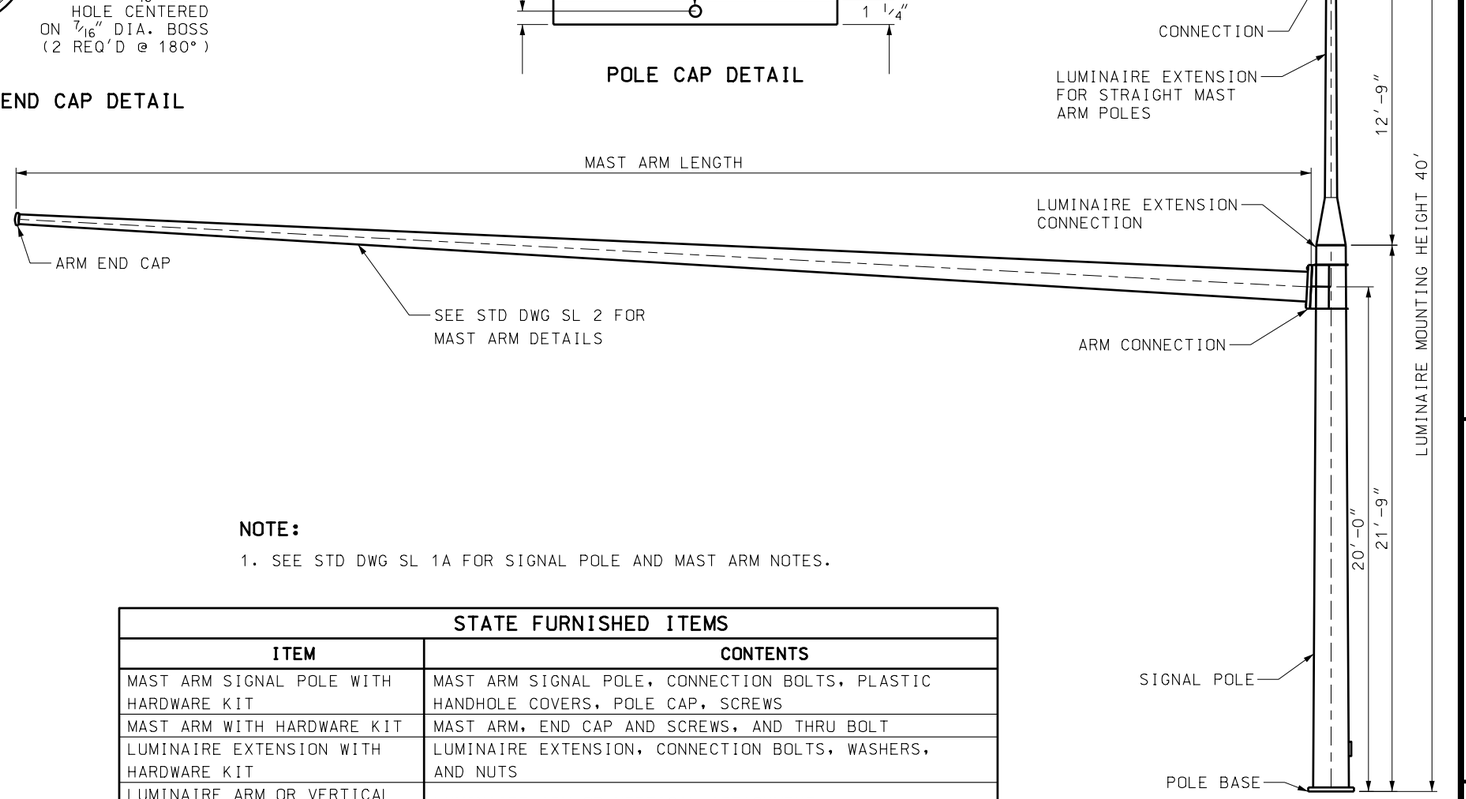
DEVICE	DESCRIPTION/SIZE	PROJECTED AREA (SF)	WEIGHT(LBS)
Ⓐ SIGNAL	12″, 3-SECTION WITH BACK PLATE	8.7	55
Ⓑ SIGN	REGULATORY 24″ x 30″	5.0	20
Ⓒ SIGN	STREET NAME 22″ x 96″ (MAX)	10.7	43
Ⓓ LUMINAIRE	ROADWAY LUMINAIRE	3.3	65



VERTICAL LUMINAIRE ATTACHMENT



POLE CAP DETAIL



NOTE:

1. SEE STD DWG SL 1A FOR SIGNAL POLE AND MAST ARM NOTES.

STATE FURNISHED ITEMS	
ITEM	**CONTENTS**
MAST ARM SIGNAL POLE WITH HARDWARE KIT	MAST ARM SIGNAL POLE, CONNECTION BOLTS, PLASTIC HANDHOLE COVERS, POLE CAP, SCREWS
MAST ARM WITH HARDWARE KIT	MAST ARM, END CAP AND SCREWS, AND THRU BOLT
LUMINAIRE EXTENSION WITH HARDWARE KIT	LUMINAIRE EXTENSION, CONNECTION BOLTS, WASHERS, AND NUTS
LUMINAIRE ARM OR VERTICAL ATTACHMENT	LUMINAIRE ARM OR VERTICAL ATTACHMENT

REVISIONS

NO.	DATE	APPR.	REMARKS
1	02/23/06	L.M.	ENTIRE DRAWING REVISED.

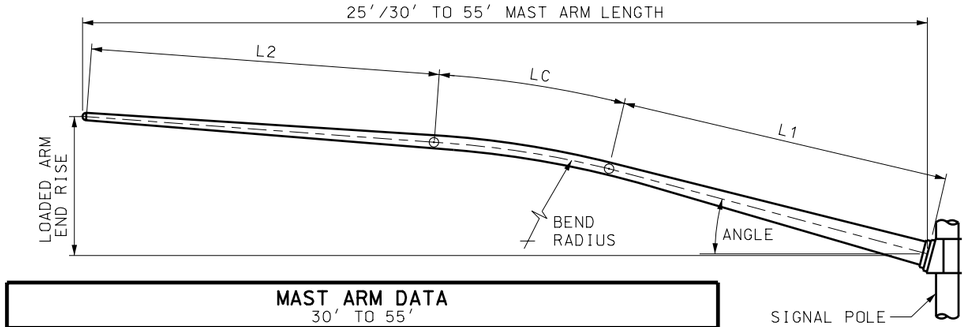
UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — FEB.23,2006 — DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — FEB.23,2006 — DATE
DEPUTY DIRECTOR

TRAFFIC SIGNAL
MAST ARM POLE AND
LUMINAIRE EXTENSION
STANDARD DRAWING TITLE

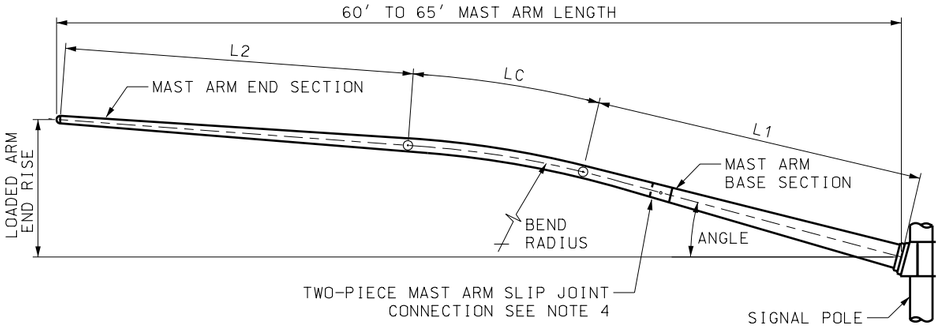
STD DWG
SL 1B

DGN File:L:\Standard Drawings\Imperial\2005Approved\Change6Approved\sl01B.dgn
01-MAR-2006



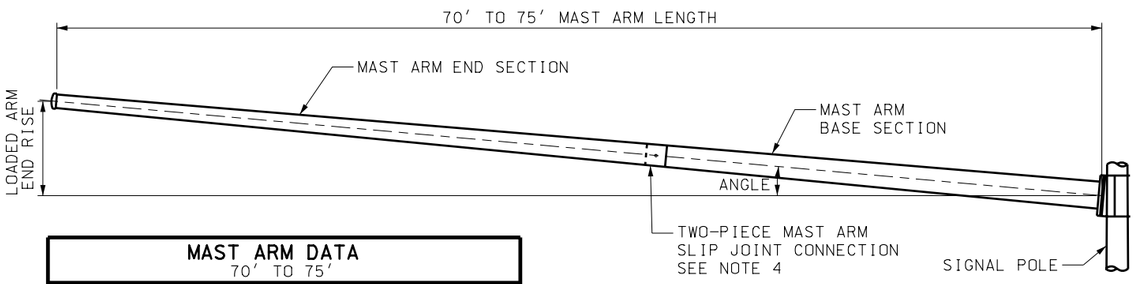
MAST ARM DATA
30′ TO 55′

LENGTH	LOADED ARM END RISE	ANGLE	BEND RADIUS	L1	LC	L2
30′	5′– 6″	16°	25′	15.79′	6.33′	8.80′
35′	5′– 6″	16°	70′	10.07′	17.72′	7.86′
40′	5′– 6″	16°	70′	9.75′	17.10′	13.78′
45′	5′– 6″	16°	70′	9.58′	16.49′	19.57′
50′	6′– 0″	13°	70′	15.95′	14.05′	20.66′
55′	6′– 0″	13°	70′	15.67′	13.44′	26.56′



SIGNAL ARM DATA
60′ AND 65′

LENGTH	LOADED ARM END RISE	ANGLE	BASE SECTION	END SECTION	BEND RADIUS	L1	LC	L2
60′	6′– 0″	12°	18.49′	44.87′	70′	21.38′	10.38′	28.86′
65′	6′– 0″	12°	18.49′	49.87′	70′	21.33′	9.77′	34.55′

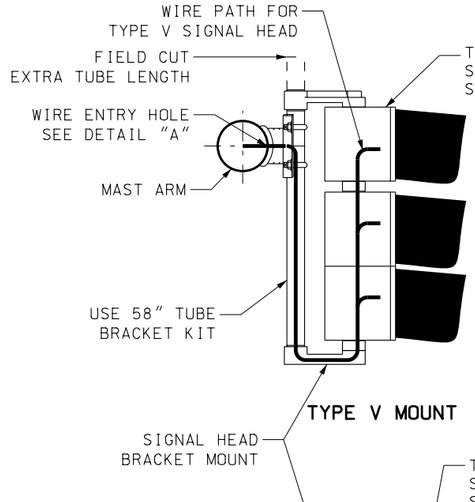


MAST ARM DATA
70′ TO 75′

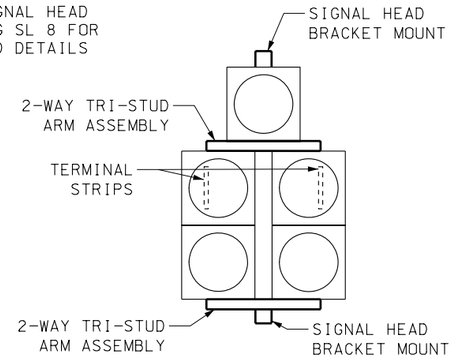
LENGTH	LOADED ARM END RISE	ANGLE	BASE SECTION	END SECTION
70′	4″	3°	30.07′	42.44′
75′	7″	3°	30.07′	47.44′

NOTES:

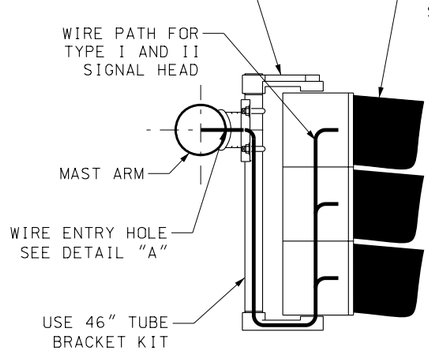
1. SEE STD DWG SL 1A FOR SIGNAL POLE AND MAST ARM NOTES.
2. PROVIDE AND INSTALL SIGNAL HEAD BRACKET MOUNT. PROVIDE SLACK IN WIRE IN THE MAST ARM SO SIGNAL HEAD CAN ADJUST UP AND DOWN THE FULL EXTENT OF THE TUBE.
3. FIELD DRILL $1^{1}/_{2}$″ DIAMETER WIRING HOLE ALONG THE HORIZONTAL CENTROID OF THE MAST ARM AT EACH SIGNAL HEAD LOCATION. DEBURR AND INSTALL NEOPRENE GROMMET FOR WIRE PROTECTION PRIOR TO INSTALLING SIGNAL HEAD BRACKET.
4. FIELD ASSEMBLE TWO-PIECE MAST ARM SLIP JOINT TO ACHIEVE A SNUG FIT. APPLY ANTI-SIEZE COMPOUND AND PROVIDE MINIMUM OVERLAP NOT LESS THAN 1.5 TIMES INSIDE DIAMETER OF END SECTION.



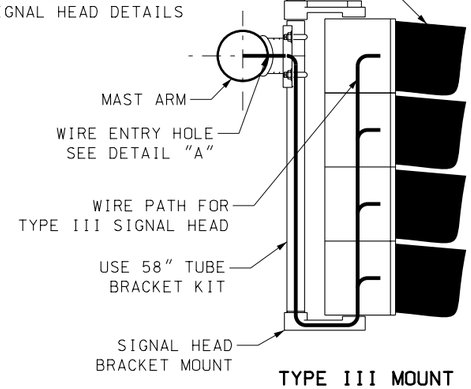
TYPE V MOUNT



TYPE V CONFIGURATION

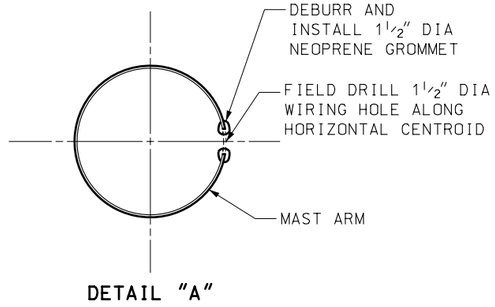


TYPE I AND II MOUNT

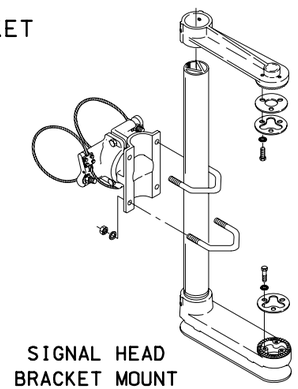


TYPE III MOUNT

SIGNAL HEAD BRACKET



DETAIL "A"



SIGNAL HEAD BRACKET MOUNT

REVISIONS				
NO.	DATE	APPR.	REMARKS	
1	02/23/06	L.M.	ENTIRE DRAWING REVISED.	

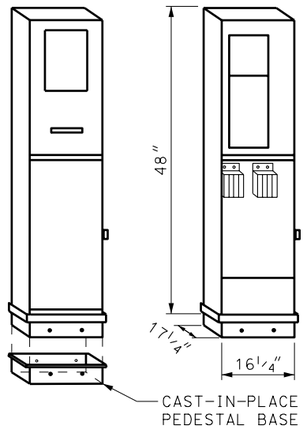
UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — FEB.23,2006 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — FEB.23,2006 DATE
DEPUTY DIRECTOR

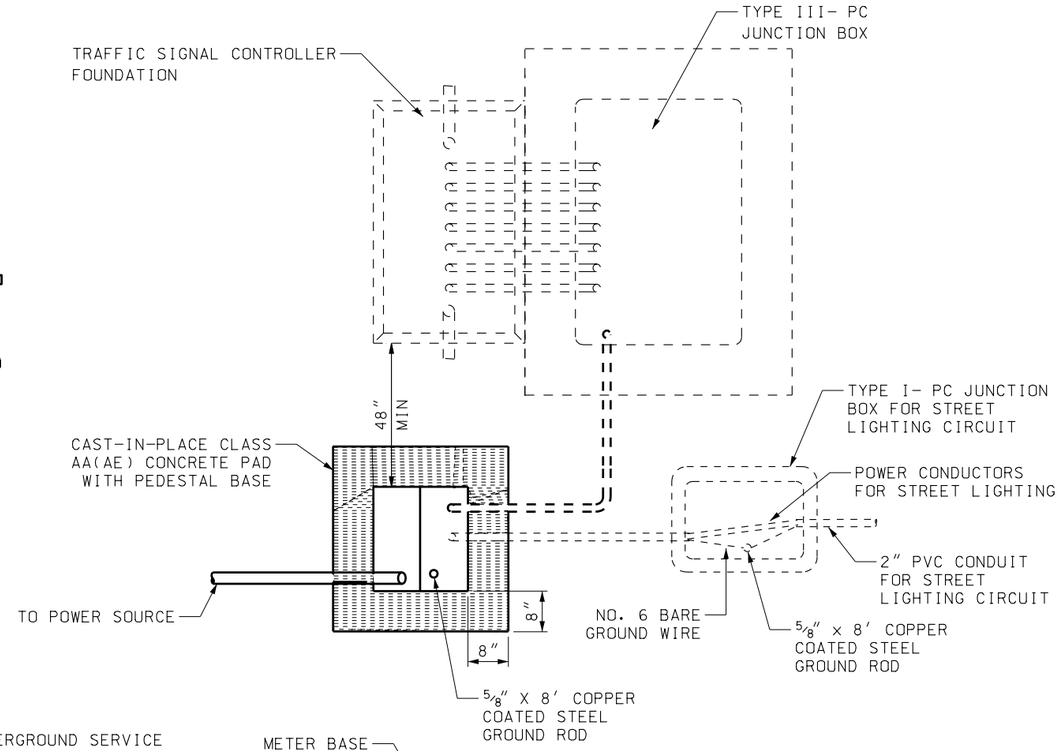
TRAFFIC SIGNAL
MAST ARM DETAILS
30′ THRU 75′
STANDARD DRAWING TITLE

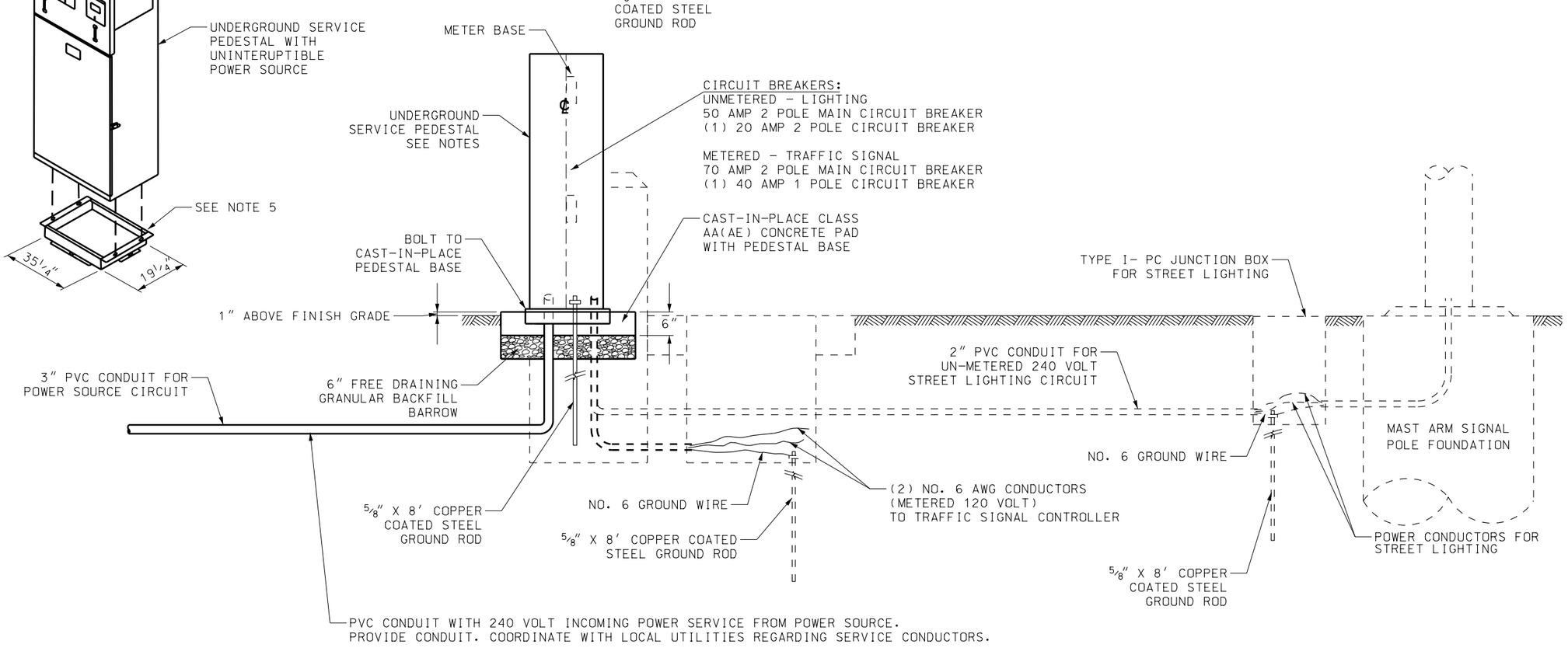
STD DWG
SL 2

DGN File:L:\Standard Drawings\Imperial\2005Approved\xChanges05Approved\sl02.dgn
01-MAR-2006



UNDERGROUND SERVICE PEDESTAL





NOTES:

1. LOCATE SERVICE PEDESTAL ON EITHER SIDE OF CONTROLLER FOUNDATION AS SPECIFIED. LOCATION MAY BE MODIFIED TO BEST SUIT FIELD CONDITIONS PER RESIDENT ENGINEER APPROVAL. MAINTAIN 48 INCH MINIMUM CLEARANCE AROUND EACH UNIT WITH DOORS OPENED TO ANY POSITION.

2. LOCATE SERVICE PEDESTAL AND CONTROLLER SO WATER DRAINS AWAY FROM FOUNDATIONS AND JUNCTION BOXES. SITE PREPARATION, INCLUDING GRADING, MAY BE REQUIRED BEFORE PLACING EQUIPMENT.

3. INCLUDE METER SOCKET WITH TEST BLOCK (SAFETY SOCKET) REQUIRED FOR CIRCUIT BREAKERS.

4. PROVIDE UNDERGROUND SERVICE PEDESTAL:

   A. RATED 100 AMP AT 120/240 VOLTS.
   B. PROVIDE FOR SIX FULL SIZE POLES (INCLUDING MAINS) FOR BOTH METERED AND UN-METERED CIRCUIT BREAKER INTERIORS.
   C. USE PLUG-IN CIRCUIT BREAKERS.
   D. LABEL ALL BREAKERS.
   E. USE DETACHABLE BASE FOR PRE-INSTALLATION IN CONCRETE FOUNDATION.
   F. SECURE PIANO HINGED DOORS WITH MASTER PADLOCK NO. P-848.

5. IF UNDERGROUND SERVICE PEDESTAL WITH UNINTERUPTIBLE POWER SOURCE IS BEING INSTALLED, PROVIDE SIMILAR CONCRETE PAD TO FIT UNIT WITH 8 INCHES AROUND BASE AND 6 INCHES THICK.

NO.	DATE	APPR.	REMARKS
1	02/23/06	L.M.	ENTIRE DRAWING REVISED.

REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — FEB.23,2006 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — FEB.23,2006 DATE
DEPUTY DIRECTOR

UNDERGROUND SERVICE PEDESTAL DETAILS

STANDARD DRAWING TITLE

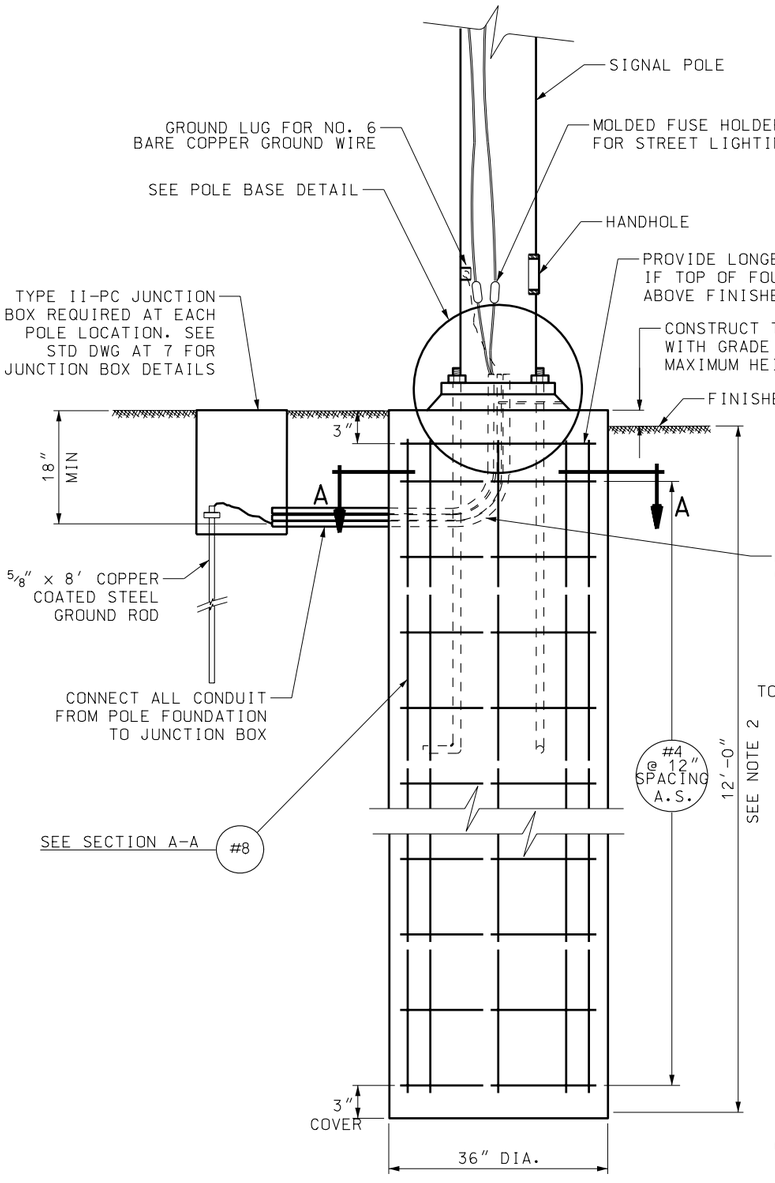
STD DWG
SL 3

DGN File:L:\Standard Drawings\Imperial\2006Approved\xChanges6Approved\sl03.dgn
01-MAR-2006

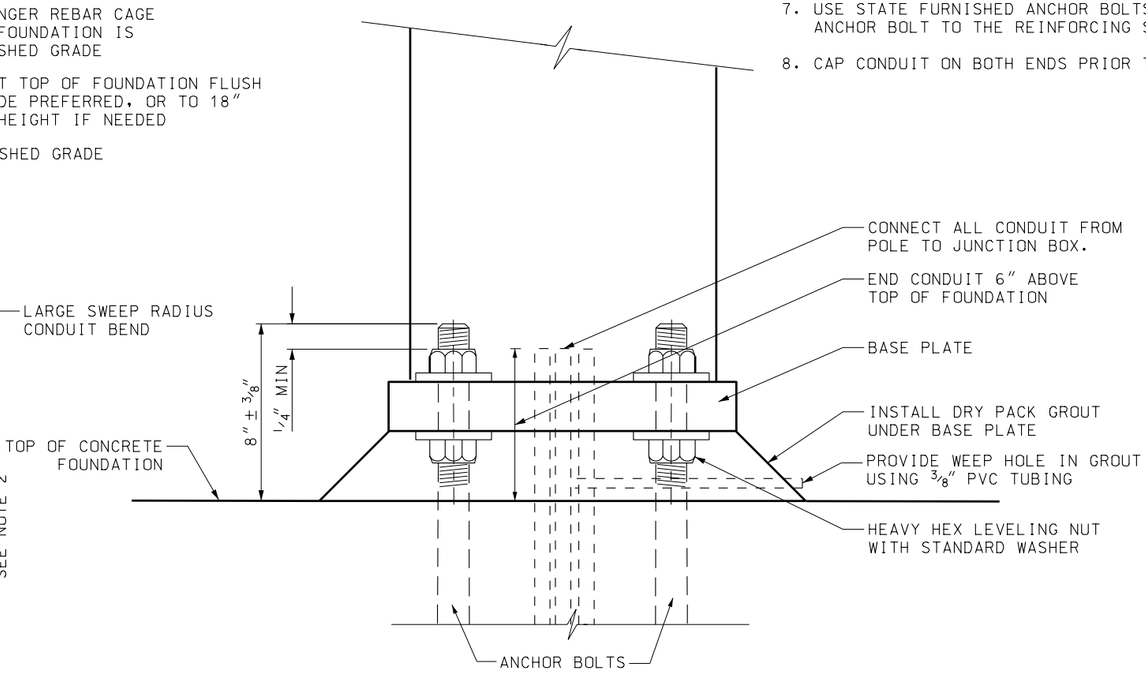
STATE FURNISHED ITEMS	
ITEM	**CONTENTS**
2″ DIA. x 66″ ANCHOR BOLT WITH HARDWARE	ANCHOR BOLT, WASHERS, AND NUTS.

NOTES:

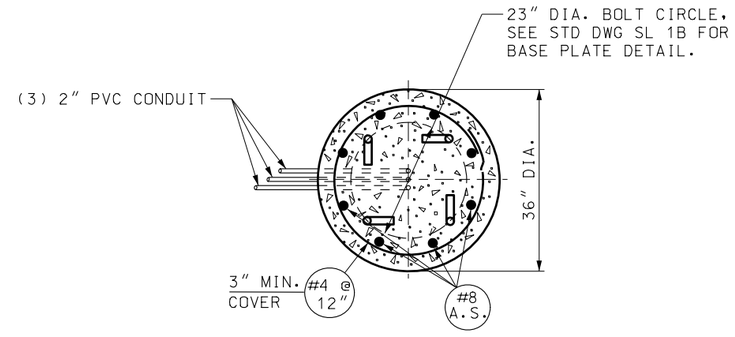
1. TIGHTEN ANCHOR BOLT NUTS TO SNUG-TIGHT PLUS 1/3 TURN.
2. CAST ALL FOUNDATIONS IN PLACE AGAINST UNDISTURBED EARTH WITH 12′ OF ITS LENGTH BELOW FINISH GRADE. DO NOT WELD REINFORCING STEEL.
3. USE A CIRCULAR FORM FOR THE TOP 18″ OF FOUNDATION EMBEDMENT.
4. INSTALL ANCHOR BOLTS SQUARE WITH ROADWAY OR AT ANGLE SPECIFIED ON PLAN SHEETS.
5. PLACE ALL CONDUIT IN SAME TRENCH WHERE POSSIBLE.
6. USE EPOXY COATED REBARS AND CLASS AA(AE) CONCRETE FOR FOUNDATION.
7. USE STATE FURNISHED ANCHOR BOLTS. DO NOT WELD ANCHOR BOLT TO THE REINFORCING STEEL.
8. CAP CONDUIT ON BOTH ENDS PRIOR TO FOUNDATION POUR.



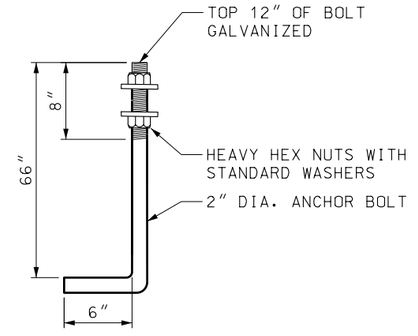
POLE FOUNDATION



POLE BASE DETAIL



SECTION A-A



2-INCH ANCHOR BOLT DETAIL
(4 REQUIRED PER SIGNAL POLE)

NO.	DATE	APPR.	REMARKS
1	02/23/06	L.M.	ENTIRE DRAWING REVISED.

REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

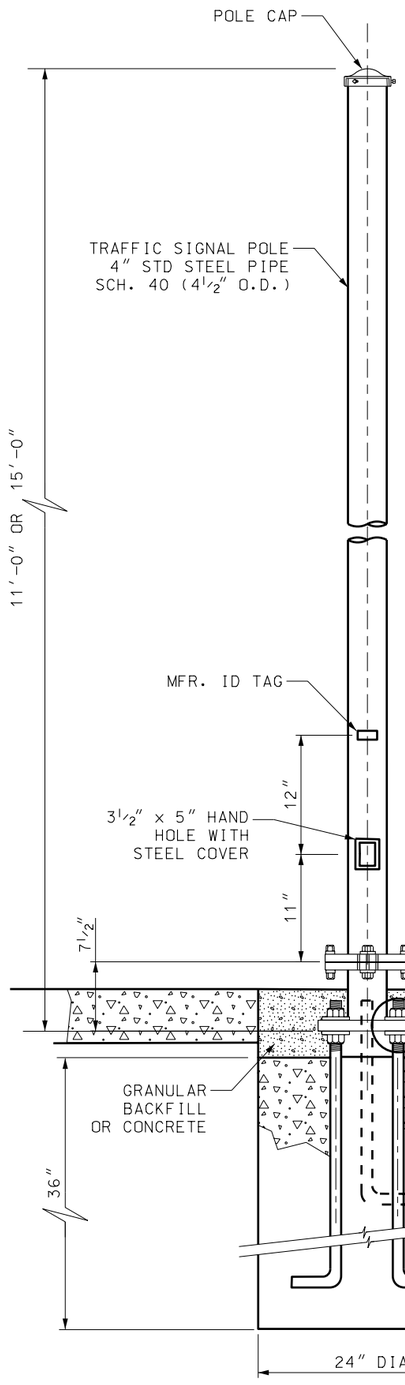
RECOMMENDED FOR APPROVAL — DEPUTY DIRECTOR — FEB.23,2006 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — FEB.23,2006 DATE

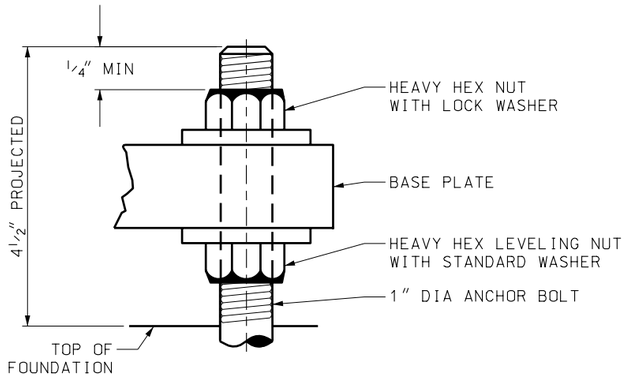
TRAFFIC SIGNAL MAST ARM POLE FOUNDATION

STANDARD DRAWING TITLE

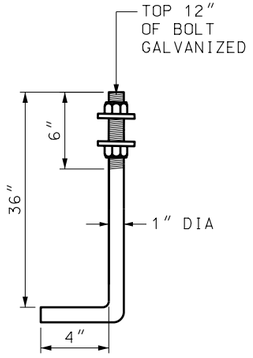
STD DWG
SL 4

DGN File:L:\Standard_Drawings\Imperial\2005Approved\vChange6Approved\sl04.dgn
01-MAR-2006

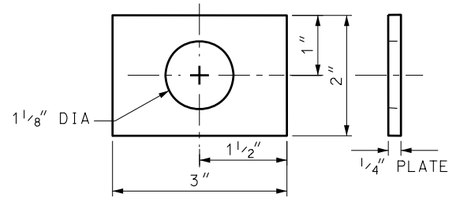




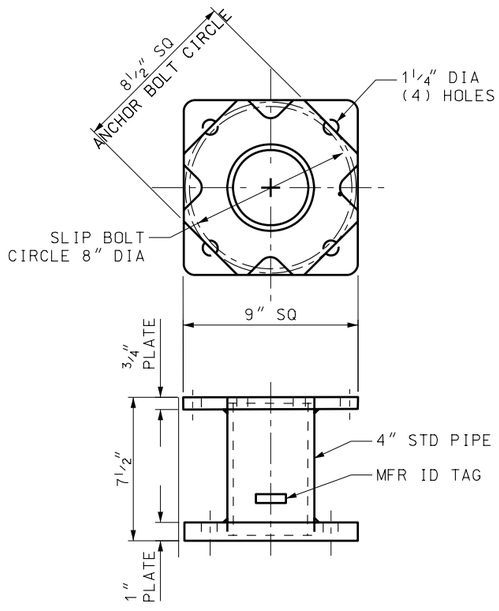
DETAIL "A"



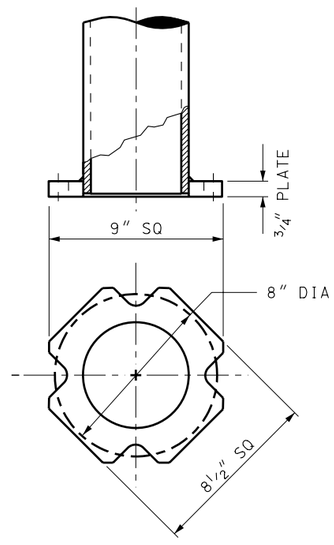
ANCHOR BOLT DETAIL
(4 REQUIRED PER SIGNAL POLE)



SLIP BOLT WASHER
(2 REQUIRED EACH BOLT)



GROUND BASE



POLE BASE

NOTES:

1. TRAFFIC SIGNAL POLE, SLIP BASE, AND RELATED HARDWARE ARE STATE FURNISHED ITEMS.
2. ALL STEEL MATERIALS INCLUDING ANCHOR BOLT THREADS ARE HOT-DIPPED GALVANIZED. AVOID DAMAGING THE GALVANIZED FINISH OF MATERIALS DURING TRANSPORT AND PLACEMENT.
3. USE CLASS AA(AE) CONCRETE FOR FOUNDATION. CAP CONDUIT ON BOTH ENDS PRIOR TO PLACING CONCRETE.
4. USE STATE FURNISHED 5/8"x 3" SLIP BOLTS. TORQUE EACH BOLT TO 40 FT/LBS, RELEASE TENSION, THEN RETORQUE TO 80 FT/LBS.
5. SEE STD DWG SN 12B FOR BREAKAWAY SUPPORT STUB HEIGHT MEASUREMENT.
6. REFER TO STD DWG SL 8 AND SL 9 FOR SIGNAL HEAD DETAILS.
7. USE STATE FURNISHED ANCHOR BOLTS.

STATE FURNISHED ITEMS	
ITEM	**CONTENTS**
TRAFFIC SIGNAL POLE WITH HARDWARE KIT	POLE, GROUND BASE, STEEL HANDHOLE COVER, POLE CAP, SLIP BOLTS, WASHERS, AND NUTS.
1" DIA. X 36" ANCHOR BOLT WITH HARDWARE	ANCHOR BOLT, WASHERS, AND NUTS.

REVISIONS

NO.	DATE	APPR.	REMARKS
1	02/23/06	L.M.	DRAWING REFERENCE AND POLE DIMENSION ADDED TO POLE DETAIL. TYPE REMOVED FROM JUNCTION BOX CALL OUT.

UTAH DEPARTMENT OF TRANSPORTATION
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SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — FEB.23,2006 DATE
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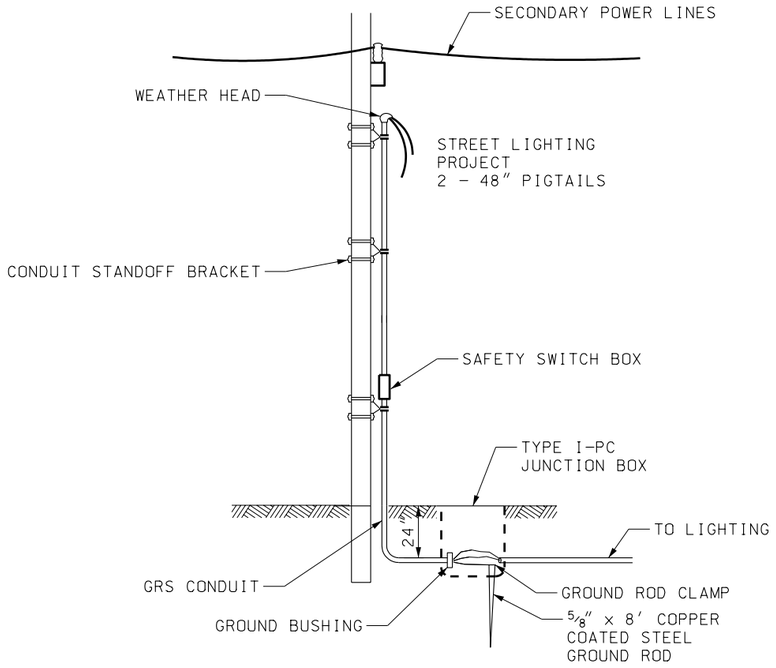
APPROVED — FEB.23,2006 DATE
DEPUTY DIRECTOR

TRAFFIC SIGNAL POLE

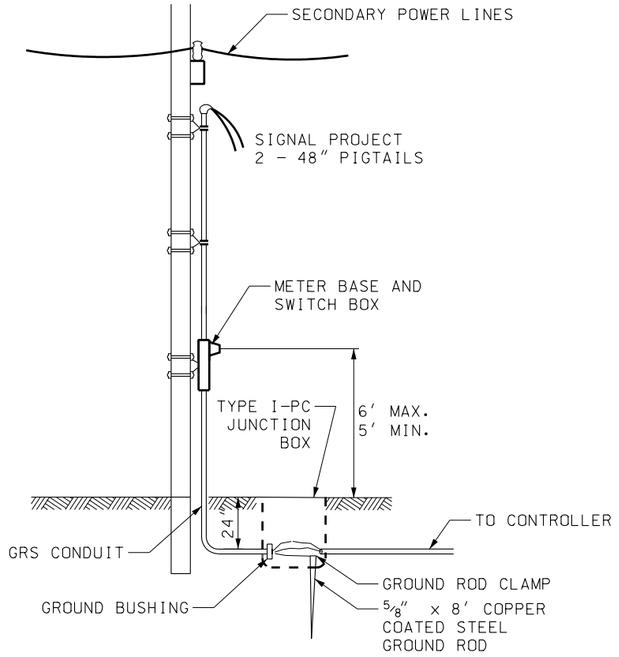
STANDARD DRAWING TITLE

STD DWG
SL 5

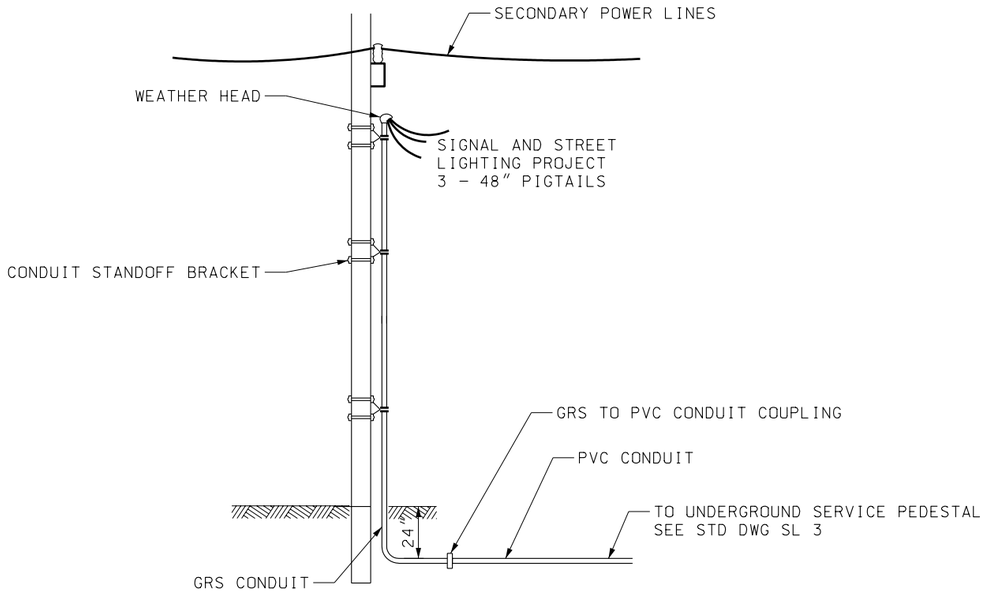
DGN File:L:\Standard Drawings\Imperial\2006Approved\Changes6Approved\sl05.dgn
01-MAR-2006



STREET LIGHTING POWER SOURCE



SIGNAL POWER SOURCE



SIGNAL AND LIGHTING POWER SOURCE

NOTES:

1. USE THE FOLLOWING CIRCUIT BREAKERS SUITABLE FOR USE ON SERVICE EQUIPMENT:

   STREET LIGHTING CIRCUIT – DUAL 20 AMP BOLT-IN CIRCUIT BREAKER.
   SIGNAL CIRCUIT – 40 AMP CIRCUIT BREAKER.

2. USE SINGLE CONDUCTOR COPPER CABLE NO.6 AWG TYPE THWN, THW, OR THHW, FOR ALL CONDUCTORS.

3. USE EUSERC APPROVED CLAMP-JAW BY-PASS RELEASE METER SOCKET ON METER BASE (REQUIRED ON SIGNAL PROJECTS ONLY).

4. USE A 3-POLE NEMA TYPE 3R AND SUPPLIED WITH A MASTER PADLOCK NO.P-848 ON ALL SAFETY SWITCH BOXES.

5. FURNISH POWER SOURCE AND INSTALL AS SHOWN.

6. USE NO.6 AWG SOLID BARE COPPER GROUND WIRE.

7. PROVIDE CORROSION PROTECTION ON BURIED METALLIC CONDUIT TO 6" ABOVE FINISHED GRADE.

8. MEET LOCAL POWER UTILITY SERVICE REQUIREMENTS.

9. USE UNDERGROUND SERVICE PEDESTAL WHEN COMBINED SIGNAL AND LIGHTING POWER SOURCE IS REQUIRED. SEE STD DWG SL 3.

REVISIONS

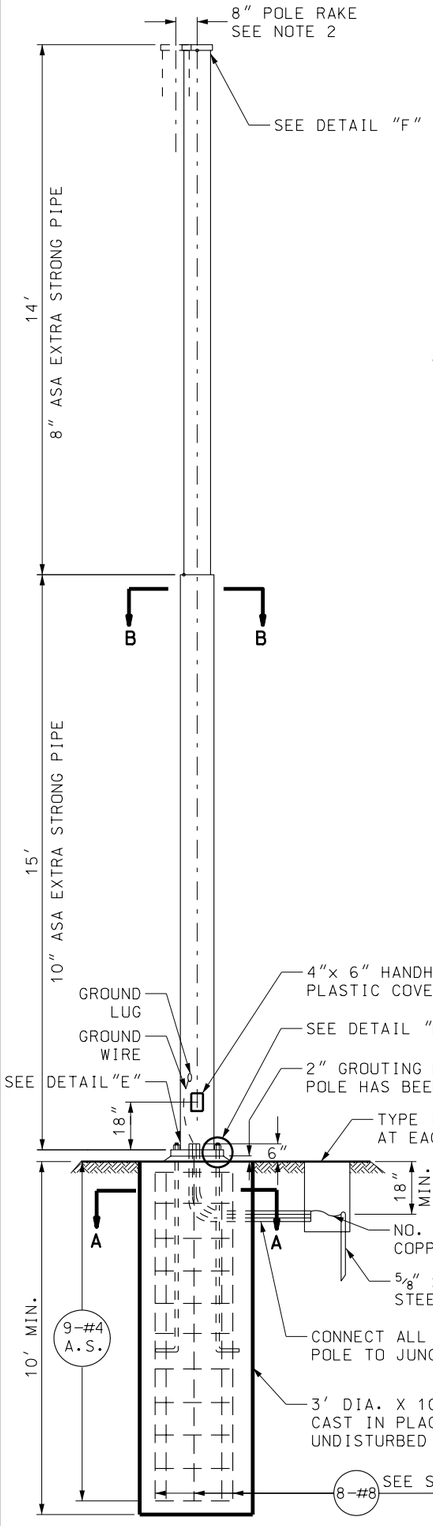
NO.	DATE	APPR.	REMARKS

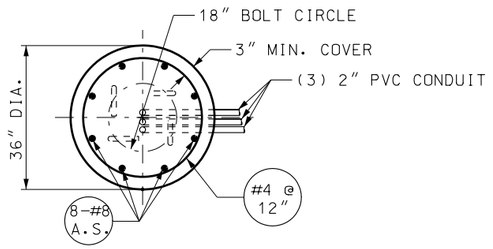
UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — JAN.01.2005 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — JAN.01.2005 DATE
DEPUTY DIRECTOR

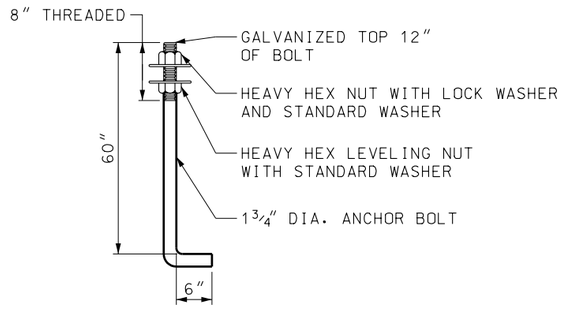
POLE MOUNTED POWER SOURCE DETAILS
STANDARD DRAWING TITLE

STD DWG
SL 6

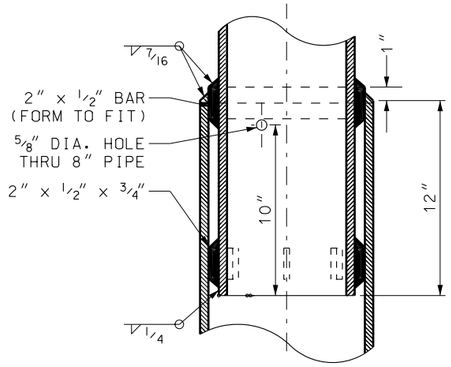




SECTION A-A



ANCHOR BOLT
(4 REQUIRED PER SIGNAL POLE)



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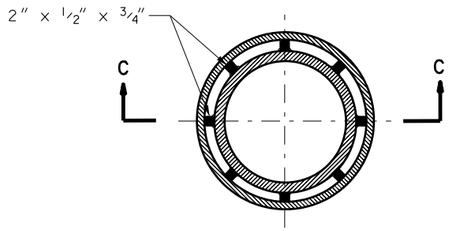
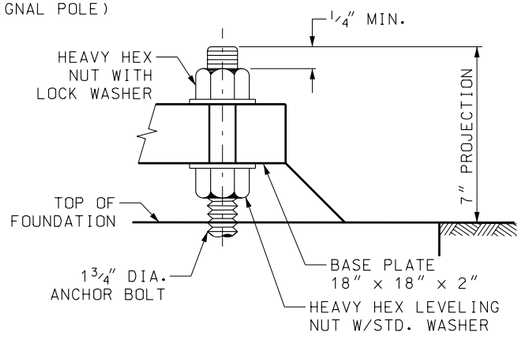
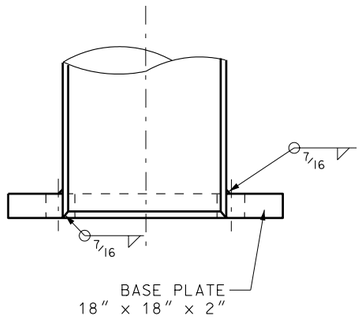


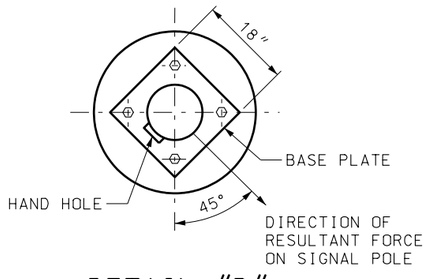
SECTION B-B



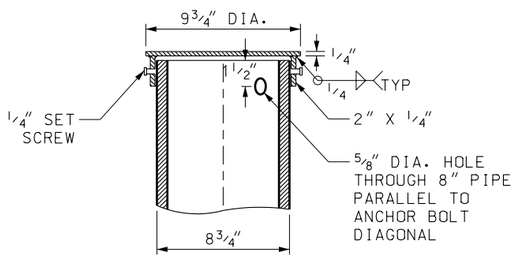
DETAIL "B"



DETAIL "E"
BASE PLATE

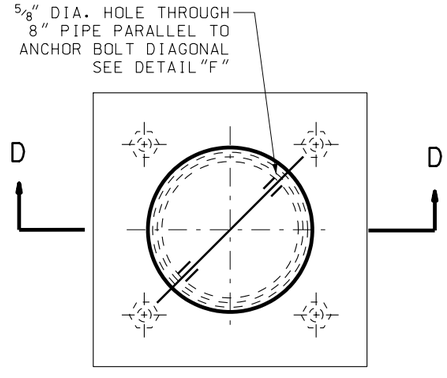


DETAIL "D"
ANCHOR BOLT LOCATION



SECTION D-D

DETAIL "F"
POLE CAP



PLAN VIEW

NOTES:

1. DESIGN POLE IN ACCORDANCE WITH 2001 AASHTO STANDARD SPECIFICATION FOR STEEL SUPPORTS LUMINAIRES AND TRAFFIC SIGNALS. USE ASTM A53 GRADE B STEEL.
2. RAKE EACH POLE 8" OPPOSITE THE DIRECTION OF EACH SINGLE PULL. FABRICATE THE POLE CAP, BASE PLATE AND SPLICE MATERIALS FROM ASTM A 36 STEEL.
3. HOT DIP GALVANIZED ALL STRUCTURAL STEEL AFTER FABRICATION IN ACCORDANCE WITH ASTM A 123.
4. FURNISH ANCHOR BOLTS CONFORMING TO ASTM A 307 EITHER HOOKED AS SHOWN OR WITH A REGULAR SQUARE HEAD AN 3/4" x 5" x 5" PLATE WASHER TACK WELDED TO BOLT HEAD.
5. USE EPOXY COATED REBARS AND CLASS AA(AE) CONCRETE FOR FOUNDATION.
6. SUBMIT SHOP DRAWINGS TO UDOT ENGINEER.
7. PLACE ALL CONDUIT IN SAME TRENCH WHERE POSSIBLE.

REVISIONS			
NO.	DATE	APPR.	REMARKS

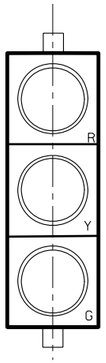
UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION

RECOMMENDED FOR APPROVAL — JAN.01,2005 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — JAN.01,2005 DATE
DEPUTY DIRECTOR

SPAN WIRE SIGNAL POLE DETAILS
STANDARD DRAWING TITLE

STD DWG
SL 7

DGN File:N:\Esa\Standard Drawings\Imperial\2005Approved\Signals (SL)\sl07.dgn
15-DEC-2004



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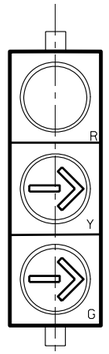

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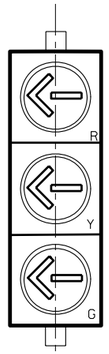

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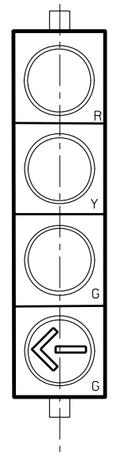
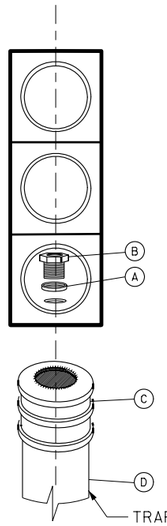


TYPE IV

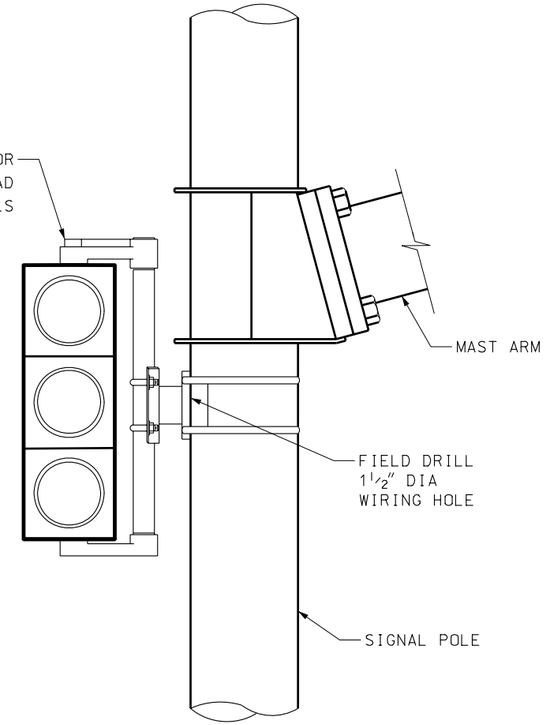


TRAFFIC SIGNAL POLE
SEE STD DWG SL 5

SIGNAL POLE TOP MOUNT

Ⓐ $1\frac{1}{2}$″ NEOPRENE WASHER
Ⓑ $1\frac{1}{2}$″ LOCK NIPPLE
Ⓒ $4\frac{1}{2}$″ INSIDE DIA POLE TOP MOUNTED TERMINAL COLLAR
Ⓓ TRAFFIC SIGNAL POLE, SEE STD DWG SL 5.

SEE STD DWG SL 2 FOR TRAFFIC SIGNAL HEAD BRACKET DETAILS



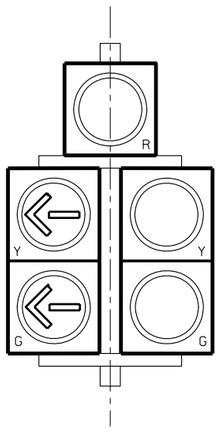
MAST ARM

FIELD DRILL $1\frac{1}{2}$″ DIA WIRING HOLE

SIGNAL POLE

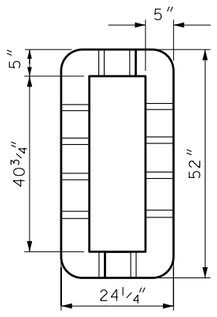
SIGNAL POLE MOUNT

NEAR SIDE SIGNAL HEAD

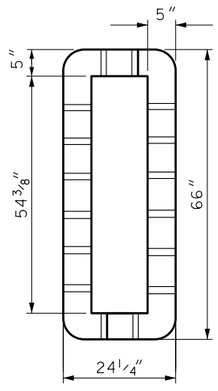


TYPE V

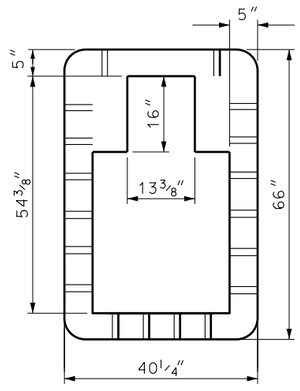
BACKPLATE FOR TYPE I, II, & III SIGNAL HEAD



BACKPLATE FOR TYPE IV SIGNAL HEAD



BACKPLATE FOR TYPE V SIGNAL HEAD



LOUVERED BACKPLATE DETAILS

NOTES:

1. USE 12″ x 12″ TUNNEL TYPE VISORS FOR TRAFFIC SIGNALS.
2. PROVIDE BRONZE FITTINGS AND GALVANIZED STEEL PIPE FITTINGS FOR POLE TOP MOUNT.
3. LOCATE TERMINAL BLOCK IN TOP SECTION FOR TYPE I, II, III, AND IV SIGNAL HEADS. REFER TO STD DWG SL 2 FOR WIRE PATH AND TERMINAL BLOCK LOCATIONS FOR TYPE V SIGNAL HEAD.
4. INSTALL TYPE V SIGNAL ASSEMBLIES SO THAT HINGED SIGNAL FACES SWING OPEN TO THE OUTSIDE.
5. ORIENT ALL LED LENSES FOR TOP UPWARD ALIGNMENT.
6. PROVIDE BACKPLATE FOR ALL TYPE I, II, III, AND IV SIGNAL HEADS. PROVIDE BACKPLATE FOR TYPE V SIGNAL HEAD ONLY AS SPECIFIED.

REVISIONS

NO.	DATE	APPR.	REMARKS
1	02/23/06	L.M.	TYPE II ADDED. OLD TYPE II AND III NOW TYPE III AND IV. BACKPLATE DETAILS UPDATED. NOTE 6 ADDED.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

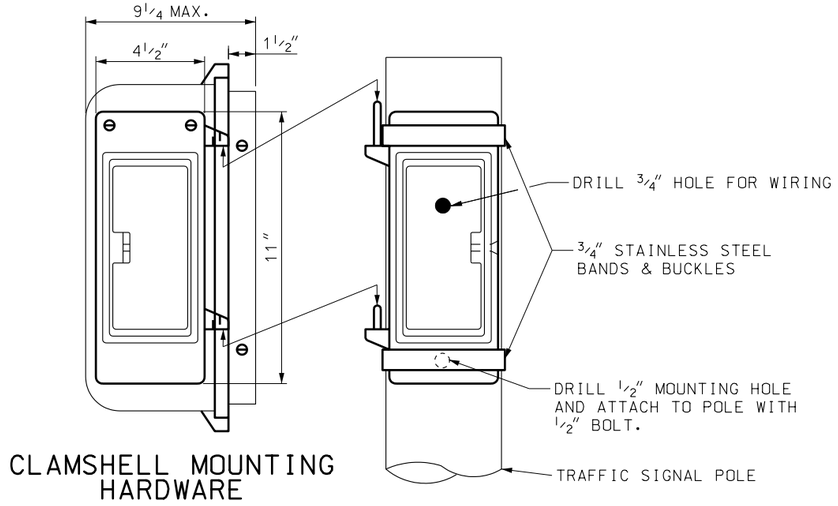
RECOMMENDED FOR APPROVAL — FEB.23,2006 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — FEB.23,2006 DATE
DEPUTY DIRECTOR

SIGNAL HEAD DETAILS

STANDARD DRAWING TITLE

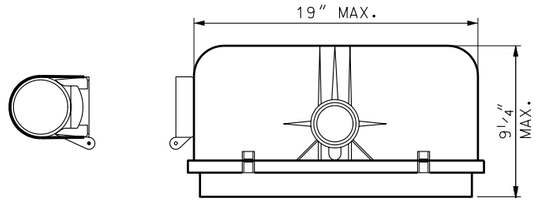
STD DWG
SL 8

DGN File:L:\Standard Drawings\Imperial\2006approved\xChange6approved\sl08.dgn
01-MAR-2006



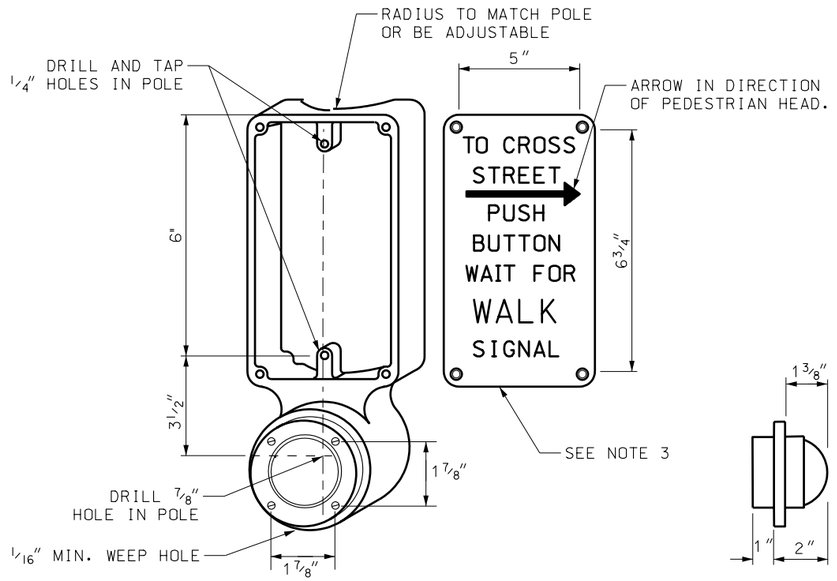
CLAMSHELL MOUNTING HARDWARE

OPEN VIEW



TOP VIEW

CLAMSHELL MOUNTING



PIPE MOUNTING

PUSH BUTTON ASSEMBLY

NOTES:

1. MOUNT PEDESTRIAN SIGNALS 9'-3" ± 6" TO BOTTOM OF HOUSING.
2. MOUNT PUSH BUTTONS 42" TO 48" ABOVE FINISH GROUND OR SIDEWALK SURFACE.
3. USE SIGN R10-4A.

REVISIONS

NO.	DATE	APPR.	REMARKS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

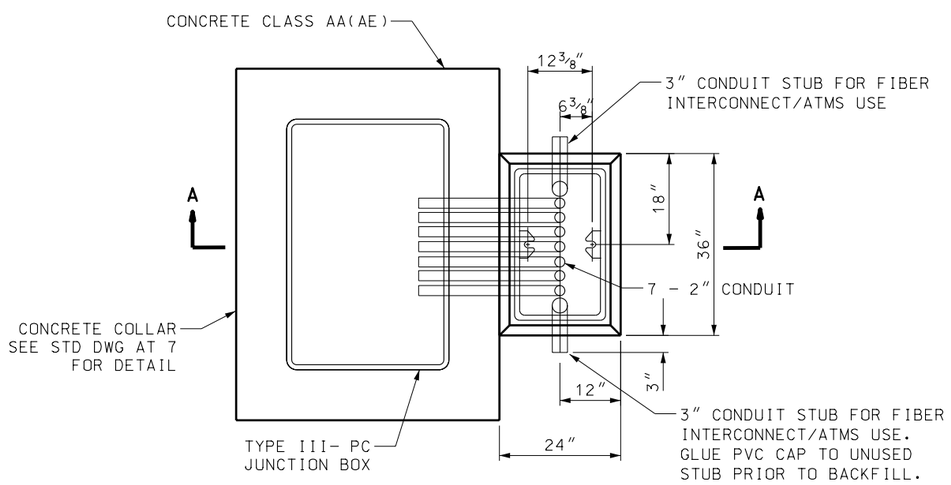
RECOMMENDED FOR APPROVAL — JAN.01.2005 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — JAN.01.2005 DATE
DEPUTY DIRECTOR

PEDESTRIAN SIGNAL ASSEMBLY

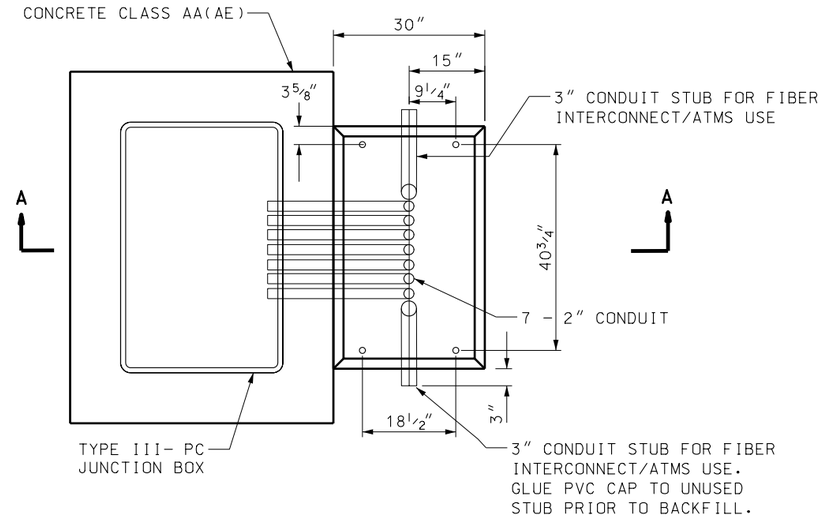
STANDARD DRAWING TITLE

STD DWG
SL 9

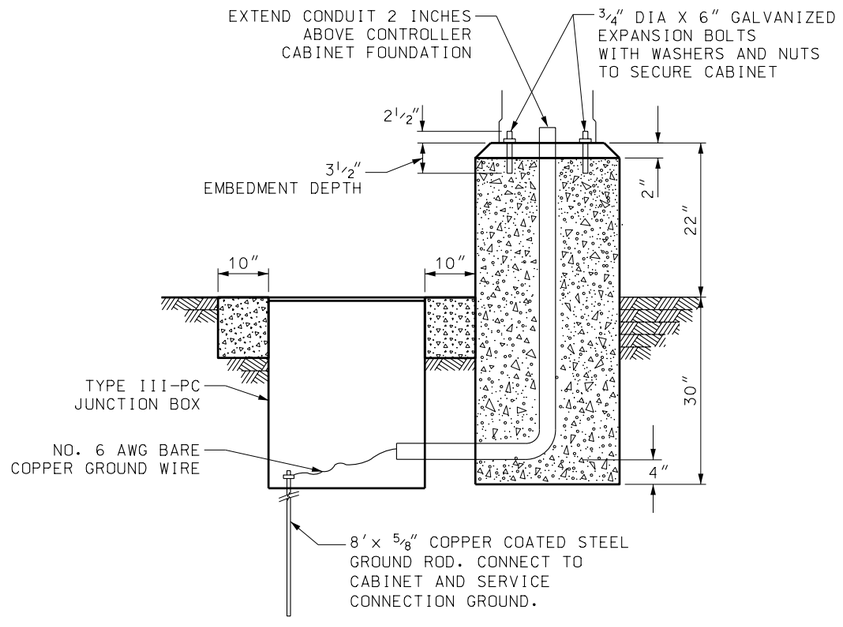
DGN File: N:\Esa\Standard Drawings\Imperial\2005Approved\Signals (SL)\sl09.dgn
15-DEC-2004



TYPE 5 CABINET BASE



TYPE 6 CABINET BASE



SECTION A-A

NOTES:

1. ATTACH THE GROUNDED SIDE OF THE SERVICE PEDESTAL POWER SUPPLY TO GROUND ROD IN THE TYPE III JUNCTION BOX.
2. MAINTAIN 1" MINIMUM SPACING BETWEEN CONDUITS IN CABINET BASE. CAP OR PLUG CONDUITS AT BOTH ENDS UNTIL USED.
3. IDENTIFY AND LABEL ALL FIELD TERMINALS.
4. GROUND CABINET BY CONNECTING GROUND WIRE TO GROUND ROD IN TYPE III JUNCTION BOX.
5. PLACE ALL CONDUITS IN THE SAME TRENCH WHERE POSSIBLE.
6. SEAL ALL CONDUITS INSIDE JUNCTION BOX AND CABINET AFTER WIRING IS COMPLETE.

REVISIONS			
NO.	DATE	APPR.	REMARKS
1	02/23/06	L.M.	ENTIRE DRAWING REVISED.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — FEB.23.2006 — DATE — DEPUTY DIRECTOR
CHAIRMAN STANDARDS COMMITTEE APPROVED — FEB.23.2006 — DATE

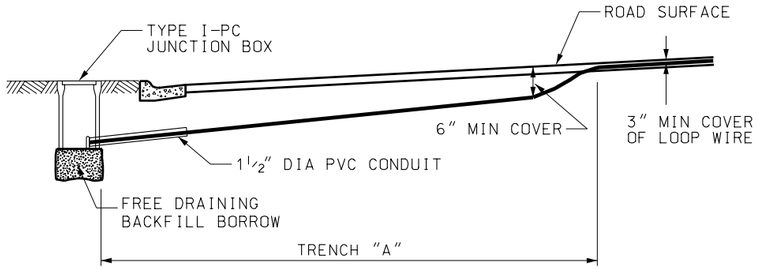
TRAFFIC SIGNAL CONTROLLER BASE DETAILS

STANDARD DRAWING TITLE

STD DWG
SL 10

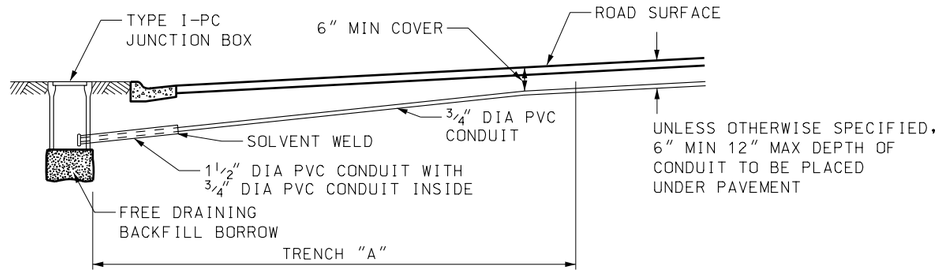
DGN File: L:\Standard_Drawings\Imperial\2005\Approved\Changes6Approved\sl10.dgn
01-MAR-2006

SAW CUT DETAIL
(CONCRETE ONLY)

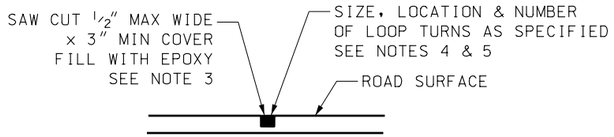


SECTION B-B

P.V.C. TRENCHED LOOP DETAIL
(ASPHALT OR UNDER NEW CONCRETE)



SECTION D-D

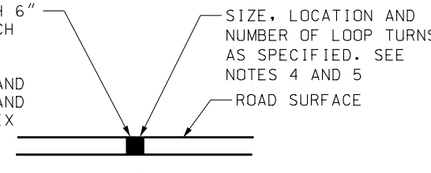


SECTION C-C

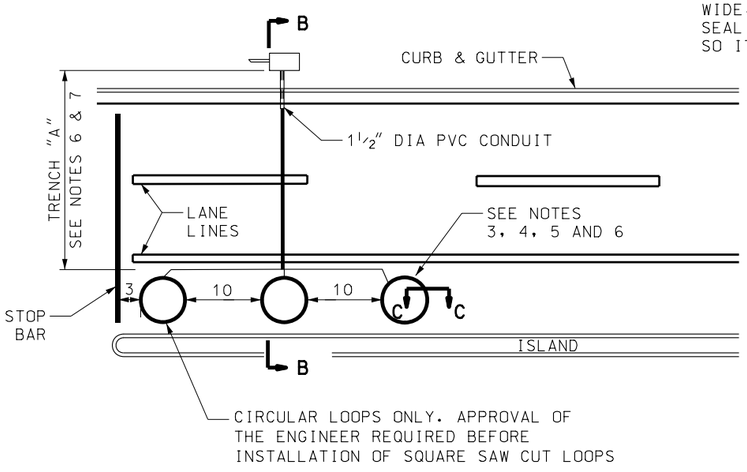
MAXIMUM TRENCH WIDTH 6" FOR BOTH CROSS TRENCH AND LOOP TRENCH

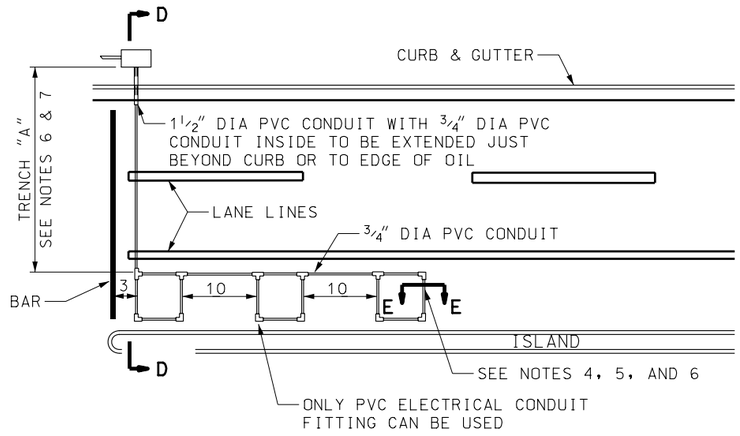
FOR TRENCH 1" WIDE AND GREATER, TACK COAT AND BACKFILL WITH HOT MIX ASPHALT (1/2" MAX AGGREGATE MIX) - COMPACT WITH FLAT NOSE ON JACK HAMMER WITH 3" MAX LIFTS

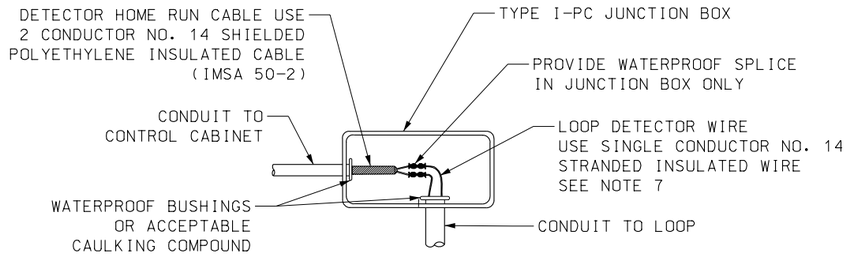
FOR TRENCH LESS THAN 1" WIDE, FILL WITH CRACK SEAL - SECURE CONDUIT SO IT DOES NOT FLOAT



SECTION E-E







LEAD-IN/HOME RUN SPLICE DETAIL

NOTES:

1. BACKFILL TRENCH WITHIN 8 HOURS OF TRENCHING WITH SPECIFIED MATERIALS.
2. USE SCHEDULE 40 PVC CONDUIT. INSTALL ALL CONDUITS IN SAME TRENCH WHERE POSSIBLE. USE INDIVIDUAL AND SEPARATE PVC CONDUIT FOR EACH LOOP AND LEAD-IN TO THE JUNCTION BOX.
3. INSTALL ALL CONDUCTORS IN SAW CUT. PLACE CABLE OR WIRE AT BOTTOM OF DRY SLOT. USE EPOXY SEAL WHICH DOES NOT CONTAIN ACETONE SOLVENT TO CLOSE SAW CUT.
4. USE 4 TURNS OF SINGLE CONDUCTOR #14 AWG CABLE ON ALL LOOPS 6' X 12' AND SMALLER. DO NOT TWIST WIRES IN LOOP.
5. SEE PLAN SHEETS FOR DETECTOR LOOP LOCATION. IF A DETECTOR LOOP LOCATION IS IN CONFLICT WITH A MANHOLE, WATER VALVE, OR PAVEMENT EXPANSION JOINT, ADJUST THE LOOP PLACEMENT FORWARD OR BACKWARD IN THE SHORTEST DIRECTION FROM THE OPTIMUM POSITION.
6. DO NOT SPLICE THE TRAFFIC SIGNAL FIELD WIRE EXCEPT THE JUNCTION BOX LOOP WIRE CONNECTIONS. TAG AND NUMBER EACH LOOP WIRE IN CONFORMANCE WITH THE DESIGN. PLACE LOOP DETECTOR WIRE COUNTER CLOCKWISE.
7. TWIST WIRES BETWEEN LOOP AND JUNCTION BOX (TRENCH "A"). USE AT LEAST ONE TWIST PER FOOT IN SAW CUTS AND AT LEAST THREE TWISTS PER FOOT IN CONDUIT. FOR SAW-CUT LOOP INSTALLATIONS, USE SINGLE CONDUCTOR NO. 14 STRANDED TYPE XLPE OR XHHW WIRE (IMSA 51-7). FOR PVC CONDUIT INSTALLATIONS, USE SINGLE CONDUCTOR NO. 14, STRANDED TYPE XHHW WIRE (IMSA 51-3).
8. INSPECT AND TEST ALL LOOPS.
9. DO NOT HOOK UP MORE THAN 4 LOOPS TO THE SAME HOMERUN CABLE OR AMPLIFIER CHANNEL.
10. PREFORMED LOOPS MAY BE USED WITH APPROVAL OF THE ENGINEER.

NO.	DATE	APPR.	REVISIONS
1	02/23/06	L.M.	ENTIRE DRAWING REVISED.

REMARKS

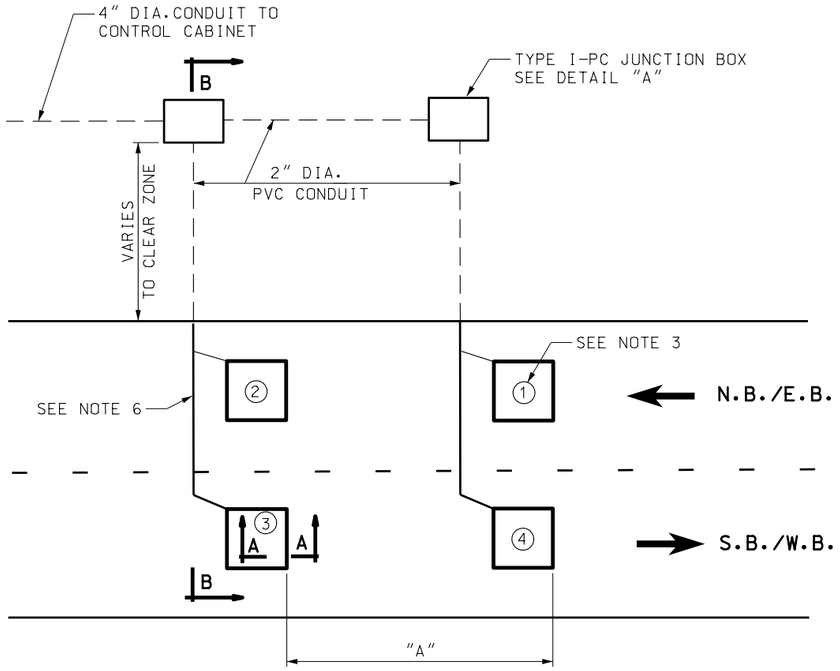
UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — DEPUTY DIRECTOR — FEB.23,2006 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — FEB.23,2006 DATE

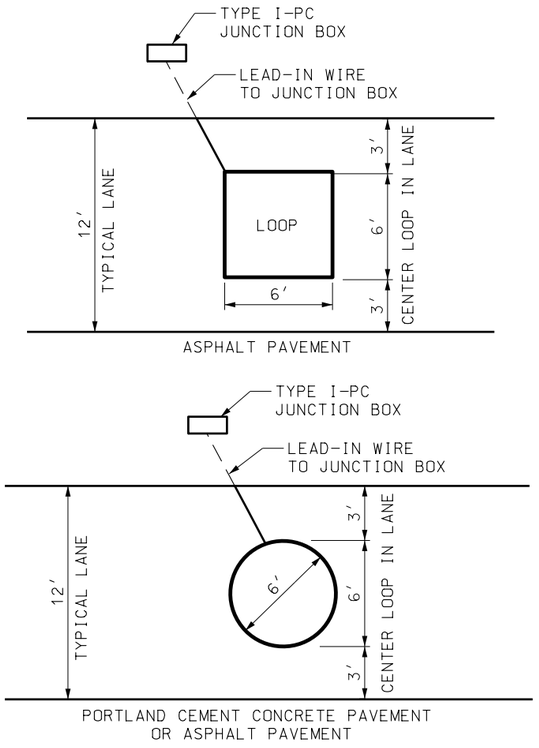
TRAFFIC SIGNAL
LOOP DETECTOR
DETAILS

STANDARD DRAWING TITLE

STD DWG
SL 11



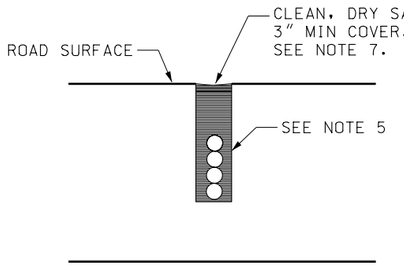
PLAN VIEW



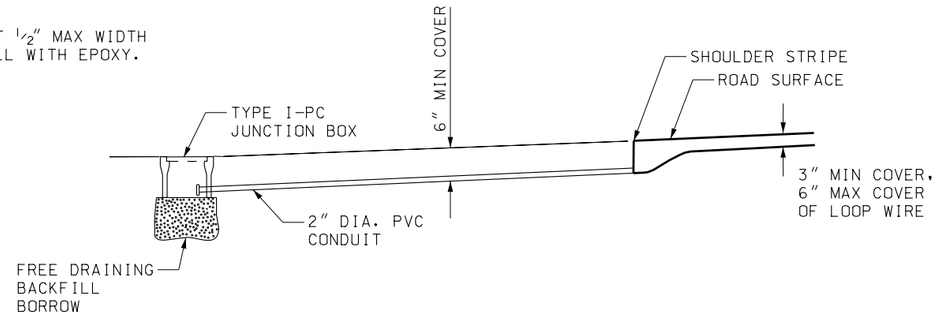
TYPICAL LOOP DETAIL

NOTES:

1. USE SCHEDULE 40 PVC CONDUIT.
2. SEE PLAN SHEETS FOR DETECTOR LOOP LOCATIONS, STATION AND OFFSET GIVEN FOR CENTER LOOP-ADJUST LOOP PLACEMENT TO AVOID CRACKED SLABS OR CUTTING THROUGH JOINTS.
3. TAG EACH LOOP WIRE IN EACH JUNCTION BOX. NUMBER EACH LOOP CONSECUTIVELY. BEGIN WITH FIRST LOOP IN NORTH BOUND (EAST BOUND) LANE CLOSEST TO SHOULDER - IN DIRECTION OF TRAFFIC, THEN SECOND LOOP IN SAME LANE, THEN ADJACENT LANE, ENDING WITH SECOND LOOP IN OPPOSITE DIRECTION LANE CLOSEST TO SHOULDER.
4. USE SEPARATE WIRE FOR EACH LOOP. EACH LOOP WIRE TO BE CONTINUOUS, WITH NO SPLICES, EXCEPT WITH THE LEAD-IN WIRE AT THE JUNCTION BOX.
5. ALL LOOPS TO HAVE FOUR TURNS OF WIRE IN THE SAME DIRECTION, COUNTER CLOCKWISE. DO NOT TWIST WIRES IN LOOP.
6. TWIST WIRES BETWEEN LOOP AND JUNCTION BOX. ONE TWIST PER FOOT IN SAW CUT, THREE TWISTS PER FOOT IN CONDUIT.
7. INSTALL ALL CONDUCTORS IN SAW CUT. PLACE CABLE OR WIRE AT BOTTOM OF DRY SLOT. USE EPOXY SEAL WHICH DOES NOT CONTAIN ACETONE SOLVENT TO CLOSE SAW CUT.



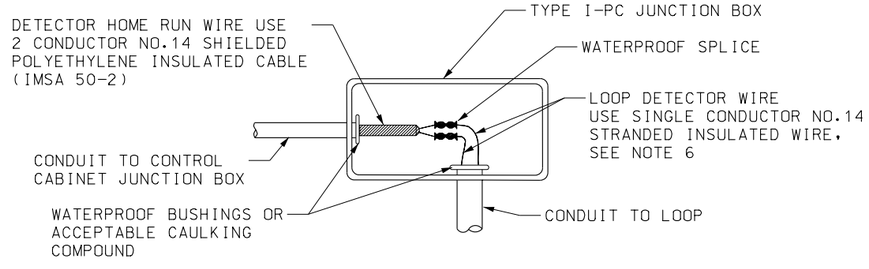
SECTION A-A



SECTION B-B

TABLE 1. LOOP SPACING

LOOP TYPE	"A"
TRAFFIC COUNTING LOOP FOR PERMANENT COUNT STATIONS	16'± 1"
TRAFFIC MONITORING STATION FOR ATMS	21'± 1"



LEAD-IN/HOME RUN SPLICE
DETAIL "A"

NO.	DATE	APPR.	REMARKS
1	04/28/05	S.S.	NOTES UPDATED. TABLE ADDED.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

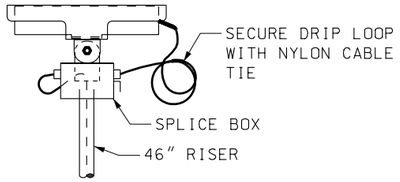
RECOMMENDED FOR APPROVAL — APR.28,2005 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — APR.28,2005 DATE
DEPUTY DIRECTOR

TRAFFIC COUNTING
LOOP DETECTOR
DETAILS

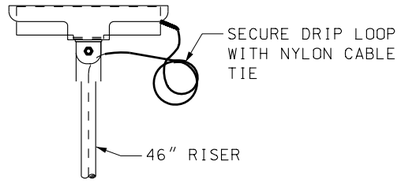
STANDARD DRAWING TITLE

STD DWG
SL 12

DGN Files L:\Standard Drawings\Imperial\2005Approved\xChange2Approved\sl12.dgn
18-MAY-2005

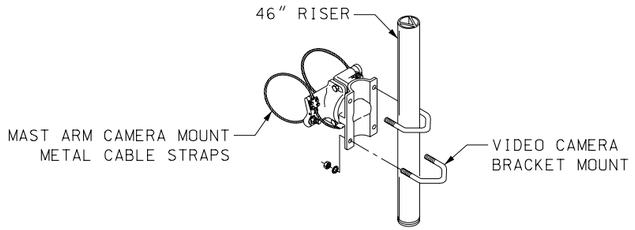


TYPE A

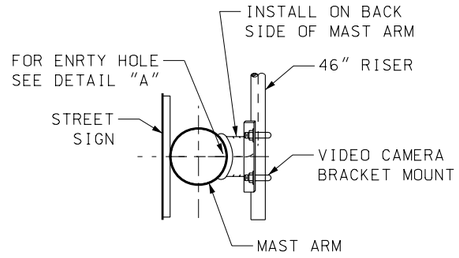


TYPE B

VIDEO DETECTION CAMERA

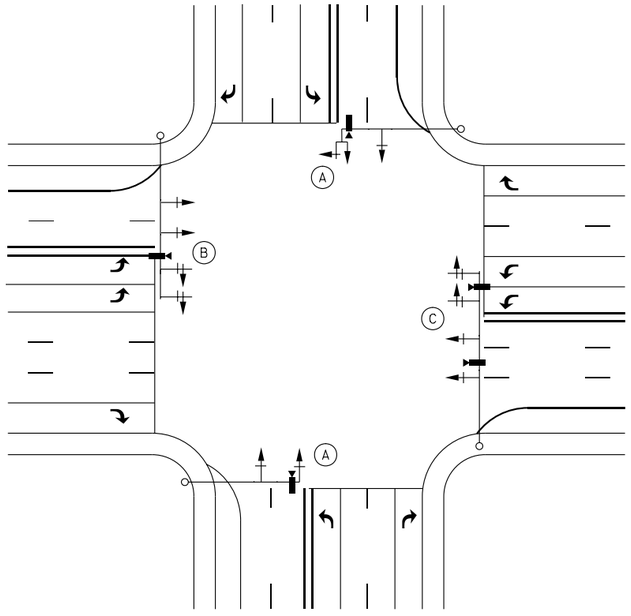


MOUNTING ASSEMBLY



MOUNTING DIRECTION

VIDEO CAMERA MOUNT DETAIL

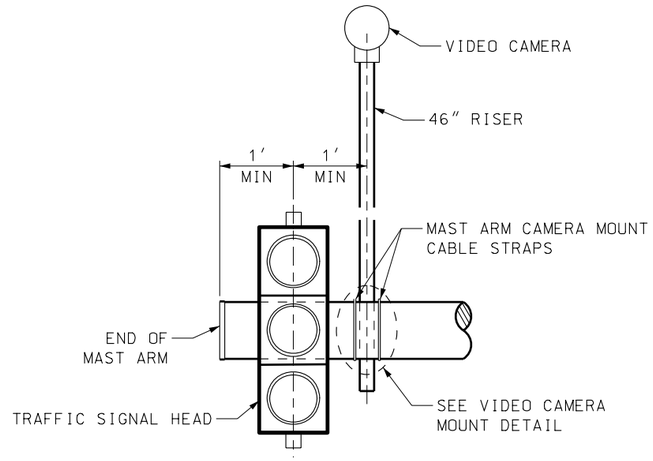


VIDEO DETECTION CAMERA PLACEMENT
APPROACH DETECTION LAYOUT

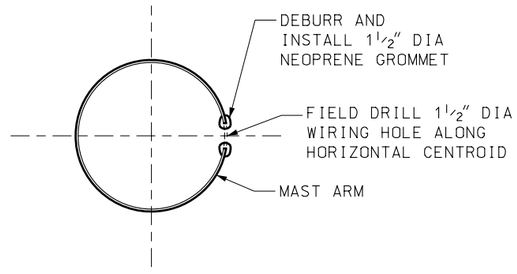
Ⓐ SINGLE LEFT TURN LANE:
PLACE CAMERA TOWARD END OF MAST ARM TO ALIGH WITH 8" WHITE LINE BETWEEN LEFT TURN LANE AND THRU LANE.

Ⓑ DOUBLE LEFT TURN LANES:
PLACE CAMERA TO ALIGH WITH 8" WHITE LINE BETWEEN LEFT TURN LANE AND THRU LANE.

Ⓒ WIDE ROADS (I.E. 2 TURN LANES AND 3 THRU LANES):
TWO CAMERAS MAY BE NEEDED. THIS IS NOT TYPICAL.



FRONT VIEW



DETAIL "A"
SEE STD DWG SL 2

NOTES:

1. SEE STD DWG SL 1A AND SL 1B FOR SIGNAL POLE AND MAST ARM NOTES AND DETAILS.
2. PLACE, AIM, AND FOCUS VIDEO DETECTION CAMERAS UNDER DIRECTION OF THE REGION SIGNAL MAINTENANCE SUPERVISOR.

REVISIONS			
1	04/28/05	T.S.	NEW DRAWING.
2	02/23/06	L.M.	ENTIRE DRAWING REVISED.
	DATE	APPR.	REMARKS

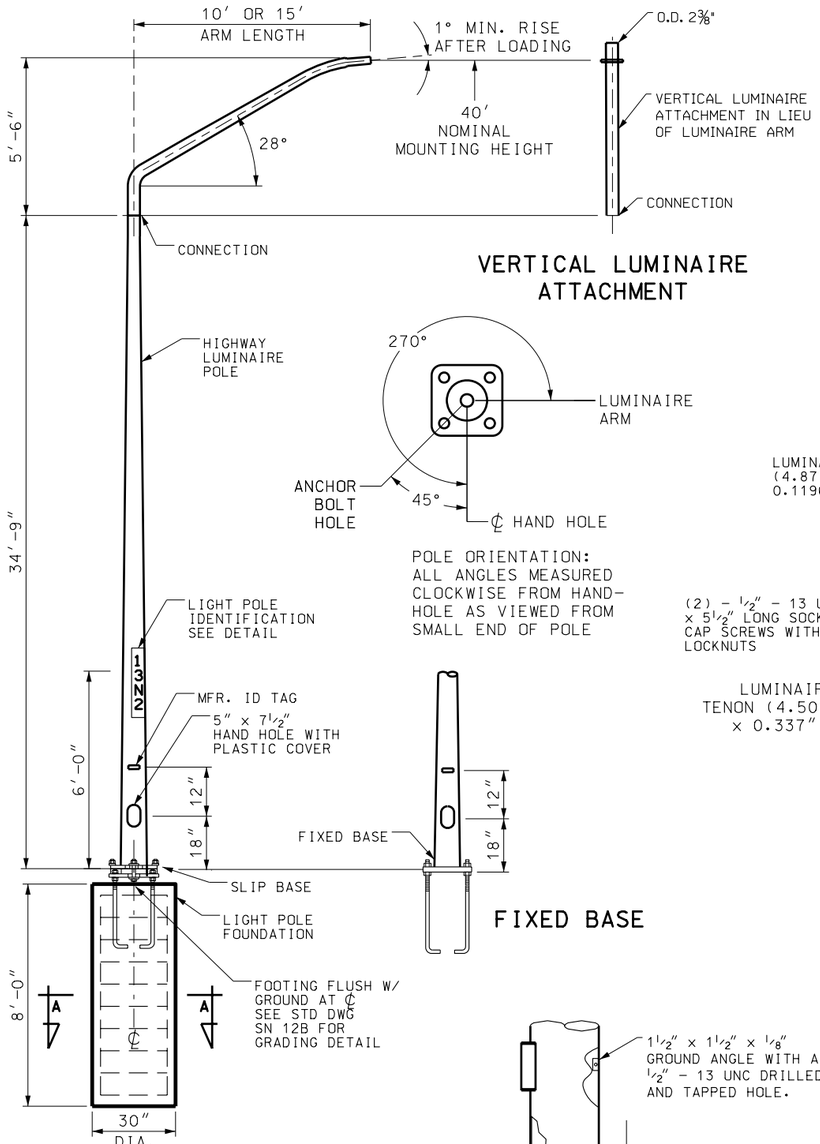
UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — FEB.23,2006 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — FEB.23,2006 DATE
DEPUTY DIRECTOR

VIDEO DETECTION CAMERA MOUNT

STANDARD DRAWING TITLE

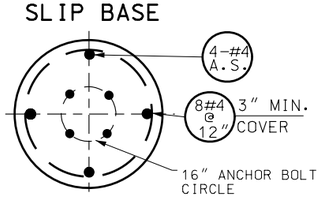
STD DWG
SL 13



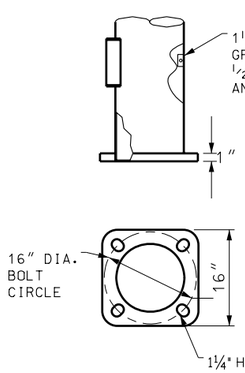
VERTICAL LUMINAIRE ATTACHMENT

POLE ORIENTATION:
ALL ANGLES MEASURED CLOCKWISE FROM HAND-HOLE AS VIEWED FROM SMALL END OF POLE

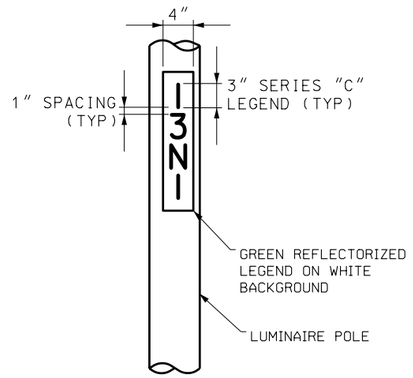
FIXED BASE



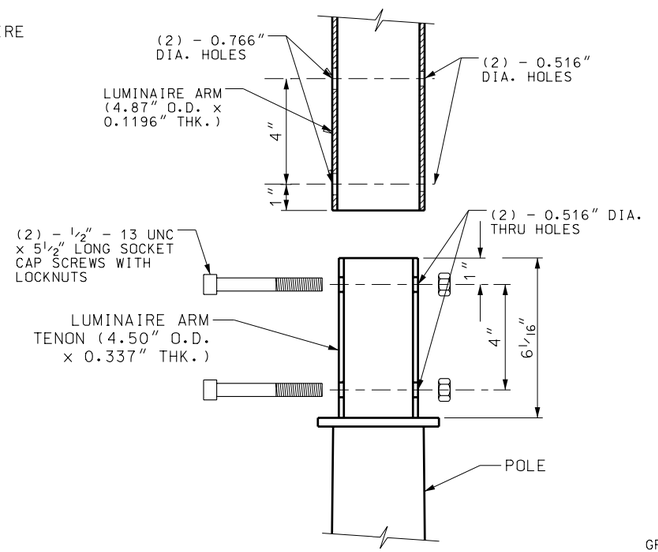
SECTION A-A
REINFORCEMENT



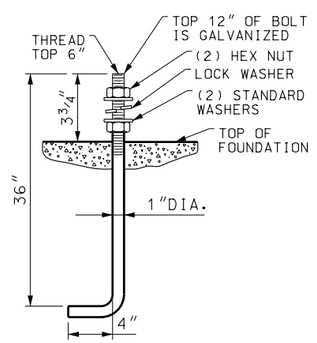
FIXED BASE PLATE DETAIL



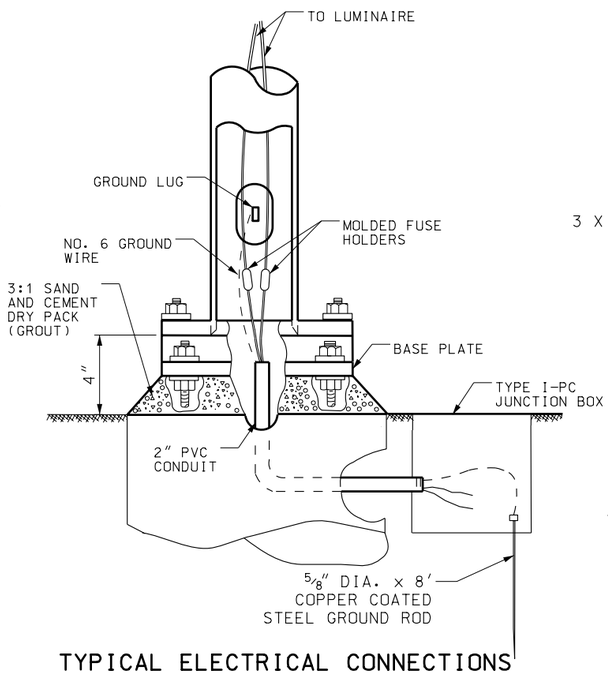
LUMINAIRE POLE IDENTIFICATION DETAIL



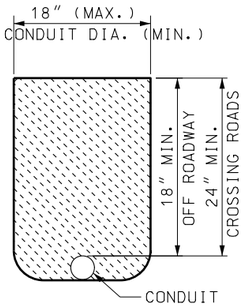
LUMINAIRE ARM/ATTACHMENT CONNECTION



ANCHOR BOLT



TYPICAL ELECTRICAL CONNECTIONS



TRENCHING DETAIL

NOTES:

1. LIGHT POLE ASSEMBLY CONSISTS OF A POLE, ARM, BASE, INTERNAL CONDUCTORS, IDENTIFICATION, SPLICES, MOLDED CONNECTORS, FUSE HOLDERS, ANCHOR BOLTS, HARDWARE AND SLIP BASE OR FIXED BASE.
2. LIGHT POLE WITH BASE, LUMINAIRE ARM OR VERTICAL ATTACHMENT, ANCHOR BOLTS, AND RELATED HARDWARE ARE STATE FURNISHED ITEMS.
3. ALL STEEL MATERIALS INCLUDING ANCHOR BOLT THREADS ARE HOT-DIPPED GALVANIZED. AVOID DAMAGING THE GALVANIZED FINISH OF MATERIALS DURING TRANSPORT AND PLACEMENT.
4. ORIENT ALL ARM EXTENSIONS AT RIGHT ANGLES TO THE SURVEY LINE OF ROADWAY.
5. CENTER SHAFT TOP OVER CENTER OF FOUNDATION AFTER ARM EXTENSION, LUMINAIRE AND ALL ELECTRICAL ACCESSORIES ARE IN PLACE.
6. LOCATE LIGHT POLE BEHIND SIGNS WHEN THERE IS CONFLICT.
7. USE EPOXY COATED REBARS AND CLASS AA(AE) CONCRETE FOR ALL FOUNDATIONS.
8. USE BREAKAWAY BASE ON ALL LIGHT POLES EXCEPT THOSE LOCATED ON STRUCTURES OR SPECIFIED ON PLANS. SEE STD DWG SL 15 FOR BREAKAWAY BASE DETAILS.

STATE FURNISHED ITEMS	
ITEM	CONTENTS
SLIP BASE HIGHWAY LUMINAIRE POLE WITH HARDWARE KIT	SLIP BASE LUMINAIRE POLE, SLIP BASE ASSEMBLY, KEEPER PLATE, PLATE WASHERS, PLASTIC HANDHOLE COVER, CONNECTION BOLTS, WASHERS, AND NUTS
FIXED BASE HIGHWAY LUMINAIRE POLE WITH HARDWARE KIT	FIXED BASE LUMINAIRE POLE, PLASTIC HANDHOLE COVER, CONNECTION BOLTS, WASHERS, AND NUTS.
LUMINAIRE ARM OR VERTICAL ATTACHMENT	LUMINAIRE ARM OR VERTICAL ATTACHMENT
1″ DIA. x 36″ ANCHOR BOLT WITH HARDWARE	ANCHOR BOLT, WASHERS, AND NUTS.

REVISIONS			
NO.	DATE	APPR.	REMARKS
1	8/25/05	LJM	UPDATED BOLT CIRCLE FOR FIXED BASE PLATE DETAIL.
			UPDATED NOTE ON FOUNDATION DETAIL.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

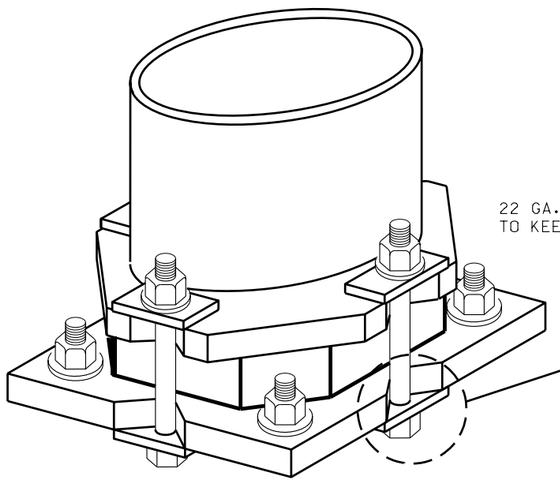
RECOMMENDED FOR APPROVAL — AUG.25,2005 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — AUG.25,2005 DATE
DEPUTY DIRECTOR

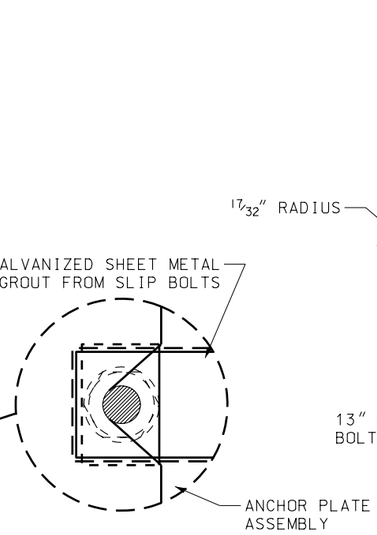
HIGHWAY LUMINAIRE POLE GROUND MOUNT

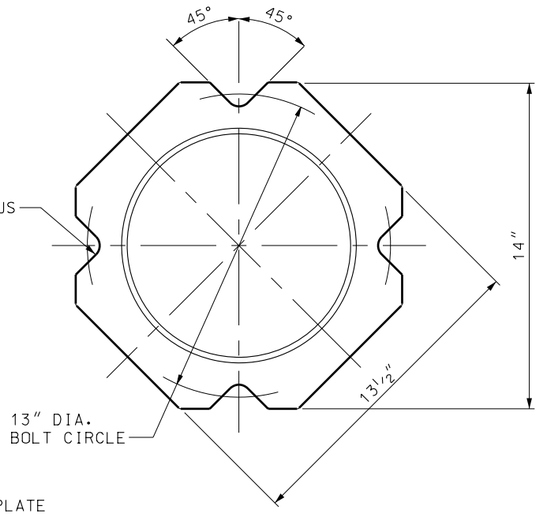
STANDARD DRAWING TITLE

STD DWG
SL 14

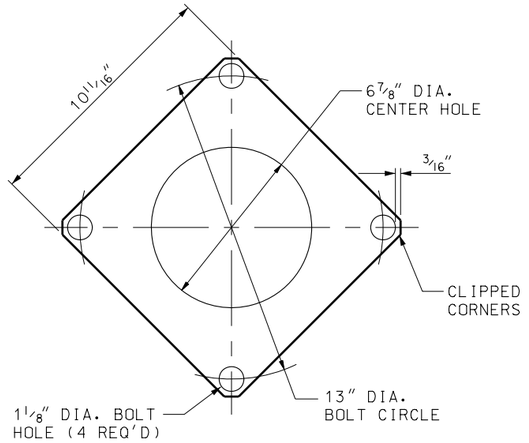
DGN File:L:\Standard Drawings\Imperial\2005Approved\xChange14approved\sl14.dgn
06-SEP-2005







POLE BASE PLATE



KEEPER PLATE

(28 GAUGE STAINLESS STEEL)

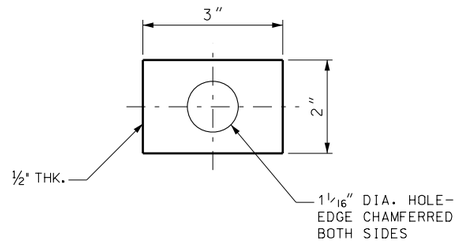
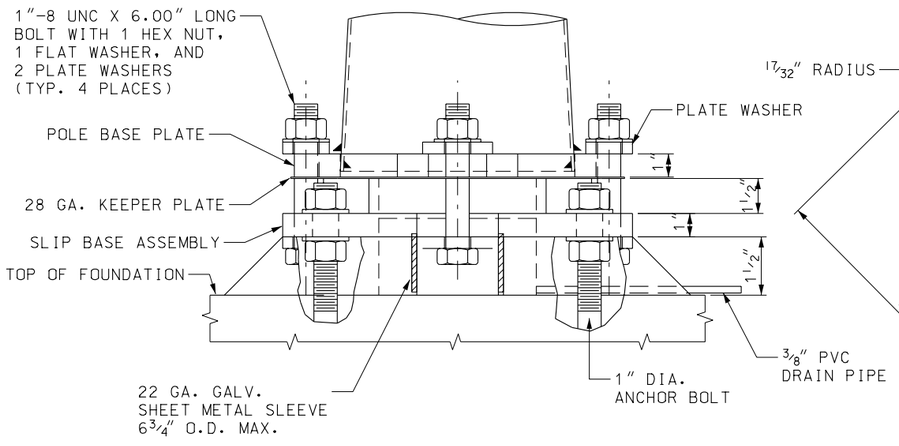
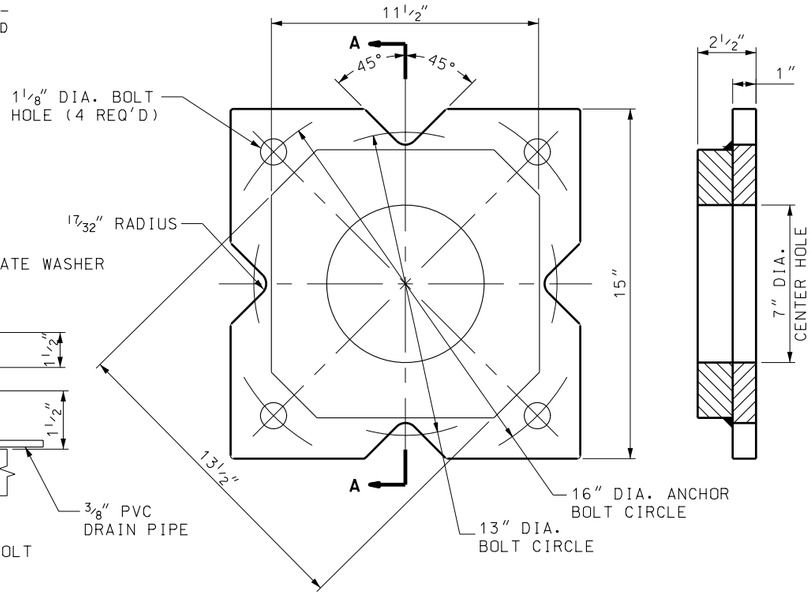


PLATE WASHER



SLIP BASE DETAIL



SLIP BASE ASSEMBLY

SECTION A – A

NOTES:

1. PLACE ANCHOR PLATE ASSEMBLY ON ANCHOR BOLT LEVELING NUTS AND SECURE IN PLACE.
2. ERECT LIGHT POLE AND SECURE WITH 1 INCH DIA. HIGH STRENGTH BOLTS. INSTALL BOLTS IN THE SLOTS SO THE BOLT SHANKS ARE IN CONTACT WITH THE LIGHT POLE PLATE AND ANCHOR PLATE ASSEMBLY.
3. ALL STEEL MATERIALS INCLUDING AHCHOR BOLT THREADS ARE HOT-DIPPED GALVANIZED. AVOID DAMAGING THE GALVANIZED FINISH OF MATERIALS DURING TRANSPORT AND PLACEMENT.
4. TORQUE ALL SLIP BOLTS TO 80 FT LBS, RELEASE AND RETORQUE TO 70 FT LBS.
5. INSTALL DRY PACK GROUT AFTER LIGHT POLE IS PLACED IN FINAL POSITION.

REVISIONS

NO.	DATE	APPR.	REMARKS
1	8/25/05	LJM	UPDATED SLIP BASE ASSEMBLY DETAIL.

UTAH DEPARTMENT OF TRANSPORTATION

STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION

SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — AUG.25.2005 DATE

CHAIRMAN STANDARDS COMMITTEE

APPROVED — AUG.25.2005 DATE

DEPUTY DIRECTOR

LUMINAIRE SLIP BASE DETAILS

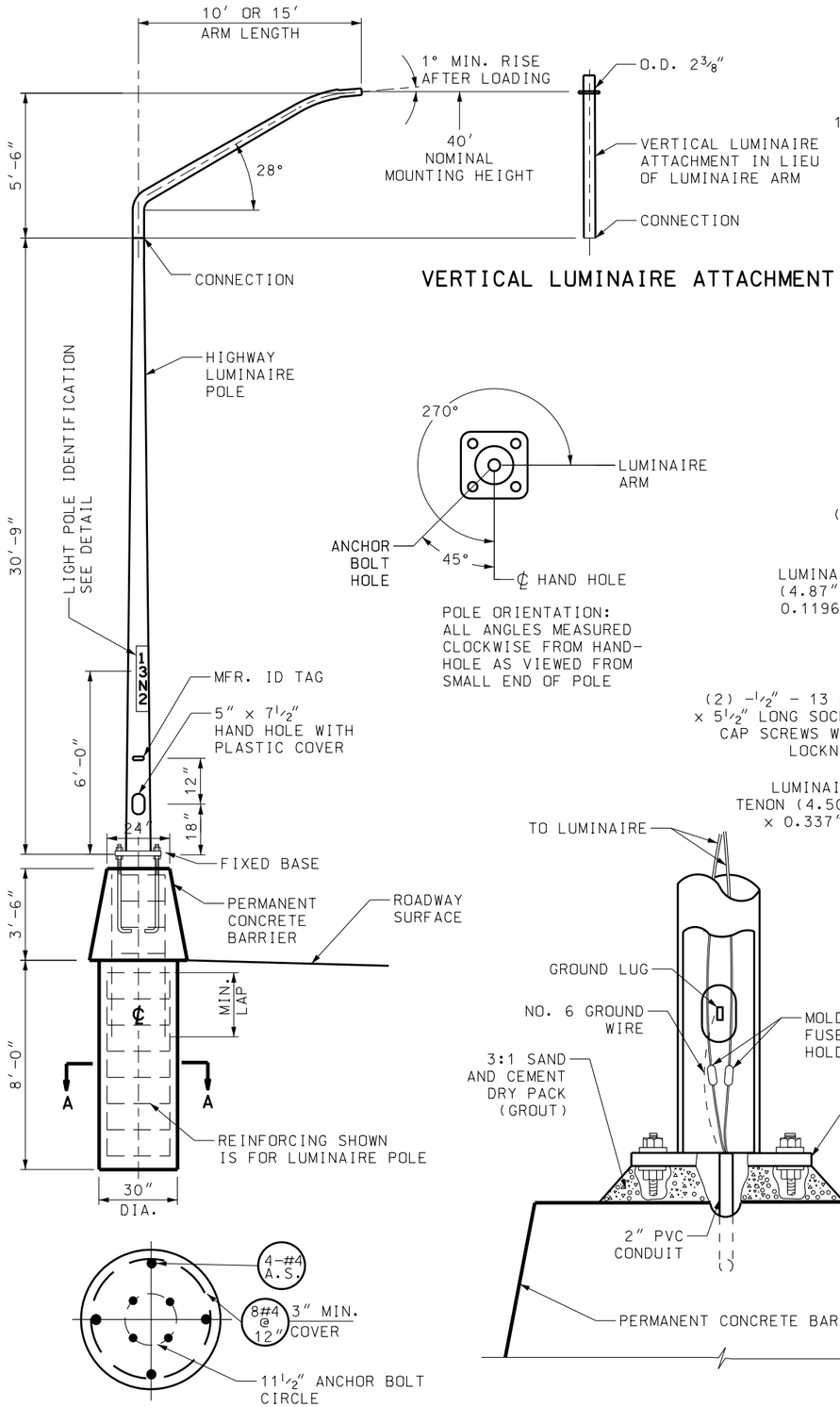
STANDARD DRAWING TITLE

STD DWG

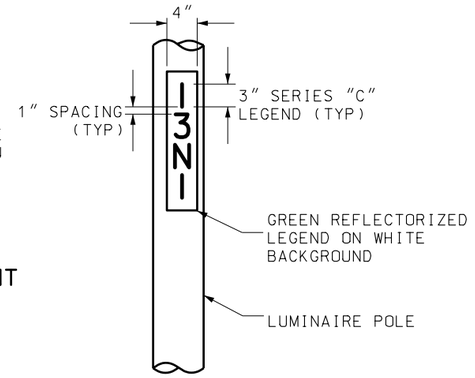
SL 15

DGN File: L:\Standard_Drawings\Imperial\2005\Approved\Change4Approved\SL15.dgn

06-SEP-2005

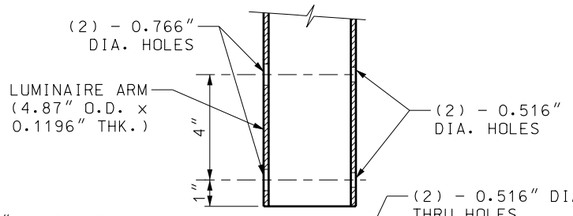


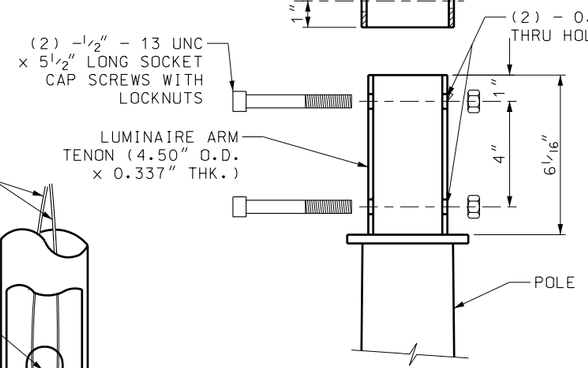
VERTICAL LUMINAIRE ATTACHMENT



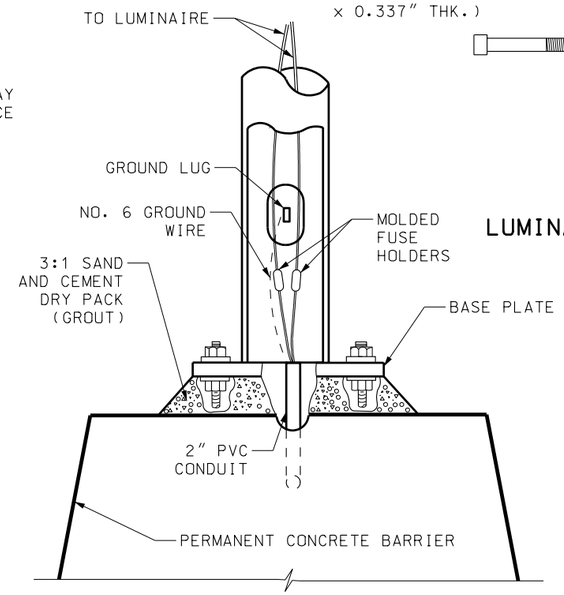
LUMINAIRE POLE
IDENTIFICATION DETAIL

POLE ORIENTATION:
ALL ANGLES MEASURED
CLOCKWISE FROM HAND-
HOLE AS VIEWED FROM
SMALL END OF POLE



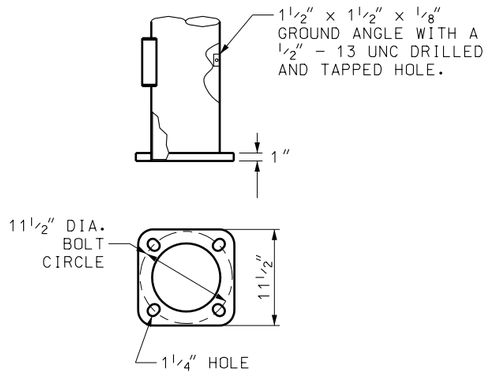


LUMINAIRE ARM/ATTACHMENT
CONNECTION

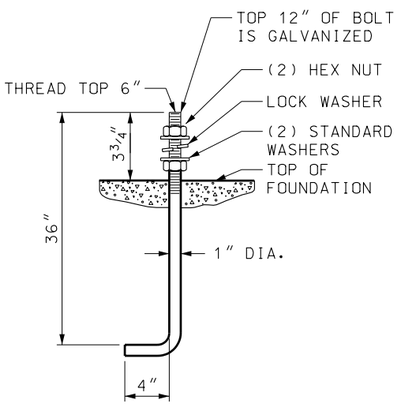


TYPICAL ELECTRICAL CONNECTIONS

SECTION A-A
REINFORCEMENT



BASE PLATE DETAIL



ANCHOR BOLT

NOTES:

1. LIGHT POLE ASSEMBLY CONSISTS OF A POLE, ARM, BASE, INTERNAL CONDUCTORS, IDENTIFICATION, SPLICES, MOLDED CONNECTORS, FUSE HOLDERS, ANCHOR BOLTS, HARDWARE AND FIXED BASE.
2. LIGHT POLE, LUMINAIRE ARM OR VERTICAL ATTACHMENT, ANCHOR BOLTS, AND RELATED HARDWARE ARE STATE FURNISHED ITEMS.
3. ALL STEEL MATERIALS INCLUDING ANCHOR BOLT THREADS ARE HOT-DIPPED GALVANIZED. AVOID DAMAGING THE GALVANIZED FINISH OF MATERIALS DURING TRANSPORT AND PLACEMENT.
4. ORIENT ALL ARM EXTENSIONS AT RIGHT ANGLES TO THE SURVEY LINE OF ROADWAY.
5. CENTER SHAFT TOP OVER CENTER OF FOUNDATION AFTER ARM EXTENSION, LUMINAIRE AND ALL ELECTRICAL ACCESSORIES ARE IN PLACE.
6. LOCATE LIGHT POLE BEHIND SIGNS WHEN THERE IS CONFLICT.
7. USE COATED REBARS AND CLASS AA(AE) CONCRETE FOR ALL FOUNDATIONS.

STATE FURNISHED ITEMS	
ITEM	CONTENTS
BARRIER MOUNT HIGHWAY LUMINAIRE POLE WITH HARDWARE KIT	BARRIER MOUNT LUMINAIRE POLE, PLASTIC HANDHOLE COVER, CONNECTION BOLTS, WASHERS, AND NUTS
LUMINAIRE ARM OR VERTICAL ATTACHMENT	LUMINAIRE ARM OR VERTICAL ATTACHMENT
1″ DIA. x 36″ ANCHOR BOLT WITH HARDWARE	ANCHOR BOLT, WASHERS, AND NUTS.

REVISIONS

NO.	DATE	APPR.	REMARKS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

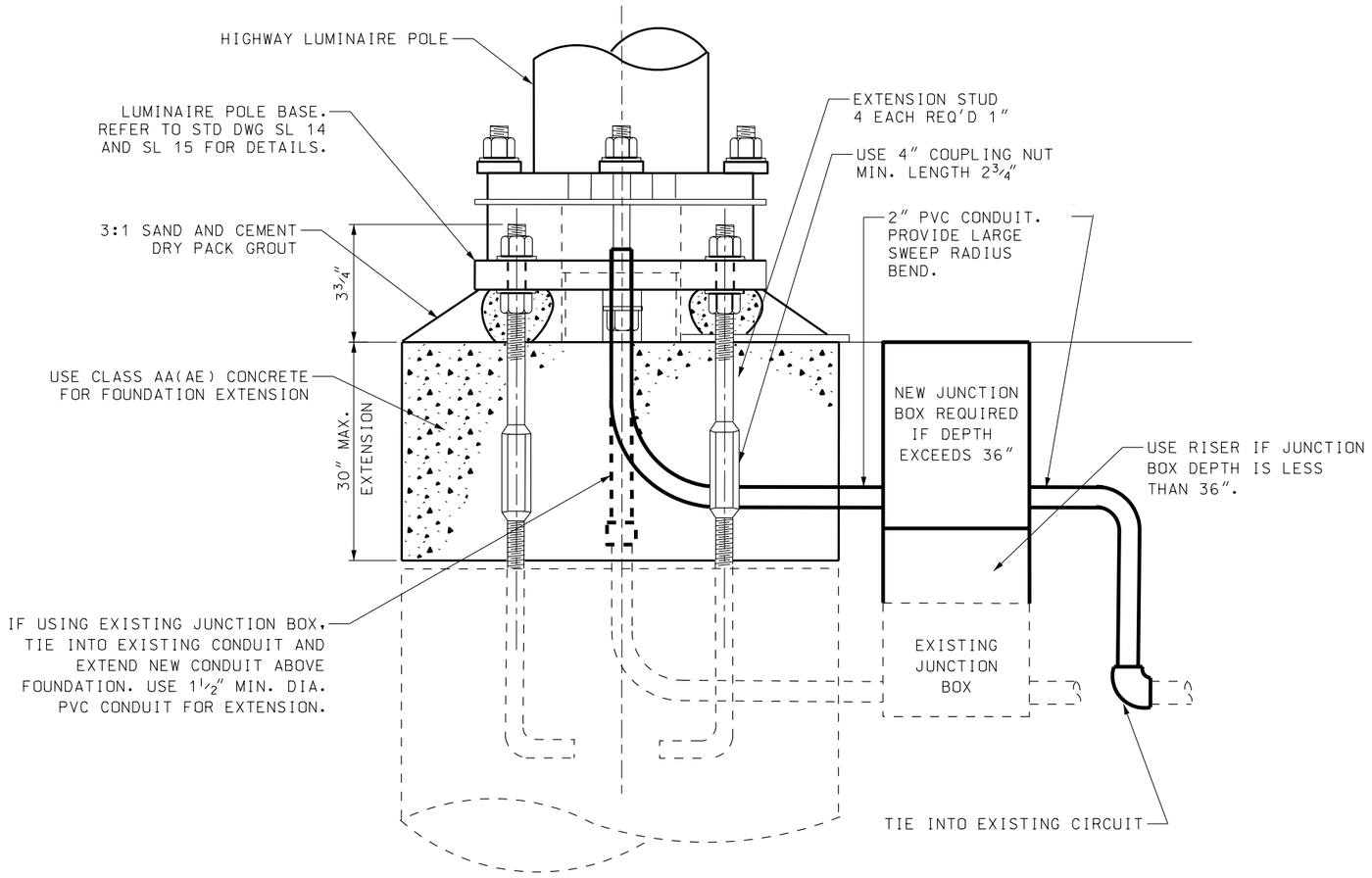
RECOMMENDED FOR APPROVAL — JAN.01.2005 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — JAN.01.2005 DATE
DEPUTY DIRECTOR

HIGHWAY LUMINAIRE
POLE BARRIER MOUNT

STANDARD DRAWING TITLE

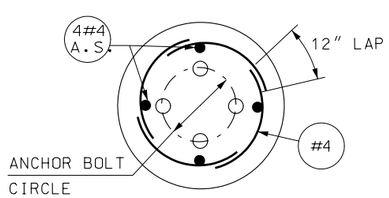
STD DWG
SL 16

DGN File: N:\Eas\Standard_Drawings\Imperial\2005Approved\Signals (SL)\sl16.dgn
15-DEC-2004



FOUNDATION EXTENSION DETAIL

USE REINFORCING STEEL THAT MEETS ASTM A 615 GRADE 60.



TIE REINFORCING HOOP TIE TO ANCHOR BOLT EXTENSION

REINFORCEMENT DETAIL

SPACING GUIDE FOR REINFORCING STEEL HOOPTIE	
RISE IN FOUNDATION EXTENSION	NO. OF RINGS
6" TO 12" 12" TO 30" 30" TO 42" 42" +	2 3 4 12" SPACING
TOP RING 3" CONCRETE COVER	

NOTES:

1. USE COUPLING NUTS AND EXTENSION STUDS ON EXISTING LIGHT POLE FOUNDATION FOR ANY EXTENSION HEIGHT REQUIRED.
2. PROVIDE COUPLING NUTS CONFORMING WITH ASTM A 307 SPECIFICATIONS WITH A MINIMUM LENGTH OF 2¾" COUPLING NUTS IN ACCORDANCE WITH ASTM A 123, OR ZINC PLATED IN ACCORDANCE WITH ASTM A 152.
3. USE 1" DIA. EXTENSION STUDS CONFORMING TO ASTM A 307. GALVANIZE EXTENSION STUDS CONFORMING TO ASTM A 123 OR ZINC PLATE CONFORMING TO ASTM A 153.
4. ATTACH COUPLING NUTS TO EXISTING ANCHOR BOLTS. INSTALL EXTENSION STUDS TO PROVIDE 3¾" PROJECTION ABOVE TOP OF NEW FOOTING. EXTEND AND/OR PLACE CONDUIT AS SHOWN. PLACE REINFORCING STEEL AS SHOWN. FORM AND CAST FOUNDATION EXTENSION WITH CLASS AA(AE) CONCRETE.
5. REINSTALL BREAKAWAY SLIP BASE PLATE BOTTOM AND SPACER PLATE ON EXTENDED ANCHOR BOLT LEVELING NUTS.
6. ERECT AND PLUMB POLE. INSTALL SLIP BOLT SHANKS IN CONTACT WITH PLATES. TORQUE SLIP BOLTS TO 80 FT-LBS. RELEASE AND RE-TORQUE TO 66 FT-LBS VERTICALLY OVER CENTER OF BASE.
7. GROUT AFTER LIGHT POLE IS SECURED IN FINAL POSITION.
8. RECONSTRUCT FOUNDATION EXTENSION TO A MAXIMUM OF 30". USE EXISTING CONDUIT AND JUNCTION BOX. EXTEND CONDUIT AS SHOWN. ADD JUNCTION BOX RISERS TO MATCH GRADE FOR A MAXIMUM JUNCTION BOX DEPTH OF 36". IF GREATER THAN 36" IN DEPTH, INSTALL NEW JUNCTION BOX AND CONDUIT SYSTEM AS SHOWN.
9. ADJUST PULL BOXES (NOT LOCATED AT LUMINAIRE POLE) TO MATCH GRADE BY ADDING RISERS FOR A MAXIMUM JUNCTION BOX DEPTH OF 36". IF GREATER THAN 36" IN DEPTH, INSTALL NEW JUNCTION BOX AND CONDUIT SYSTEM AS SHOWN.
10. PROVIDE NEW CONDUIT LENGTH AND CONFIGURATION NECESSARY TO COUPLE THE EXISTING CONDUIT THROUGH FOUNDATION EXTENSION.
11. FILL ABANDONED JUNCTION BOXES WITH SAND.

REVISIONS

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UTAH DEPARTMENT OF TRANSPORTATION
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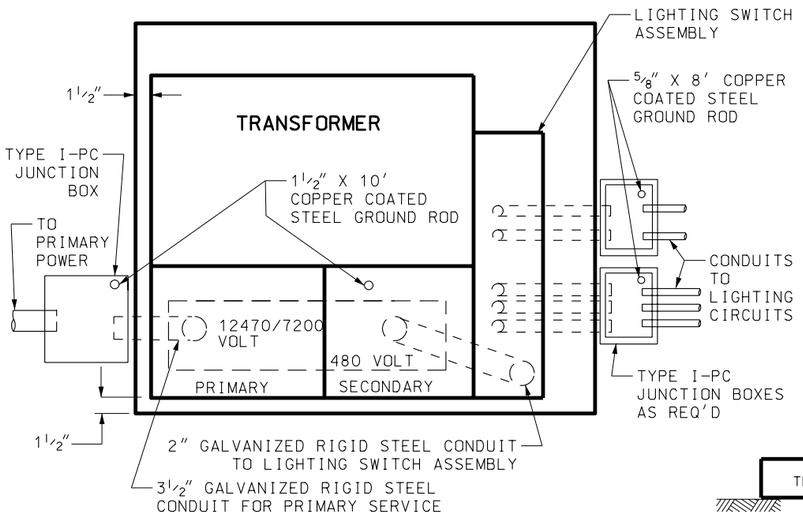
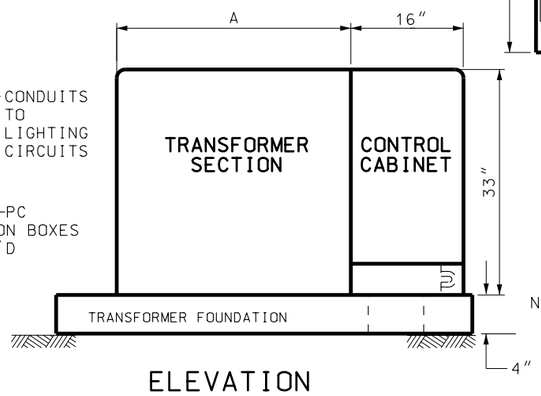
RECOMMENDED FOR APPROVAL — JAN.01.2005 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — JAN.01.2005 DATE
DEPUTY DIRECTOR

HIGHWAY LUMINAIRE POLE FOUNDATION EXTENSION
STANDARD DRAWING TITLE

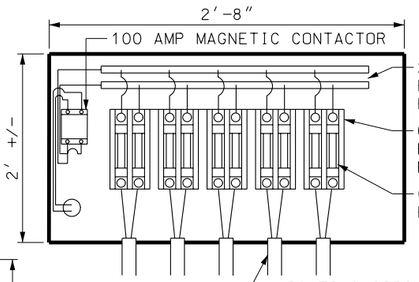
STD DWG
SL 17



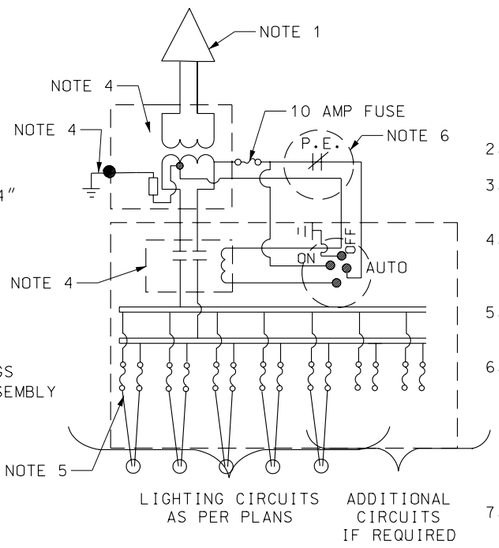
DIMENSION "A"		
25 TO 50 KVA	75 KVA	100 KVA
33"	40"	40"



ELEVATION



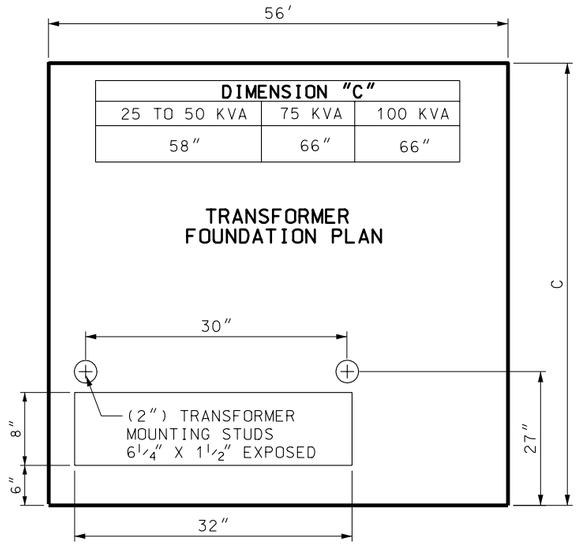
LIGHTING SWITCH ASSEMBLY



SCHEMATIC CONNECTION DIAGRAM

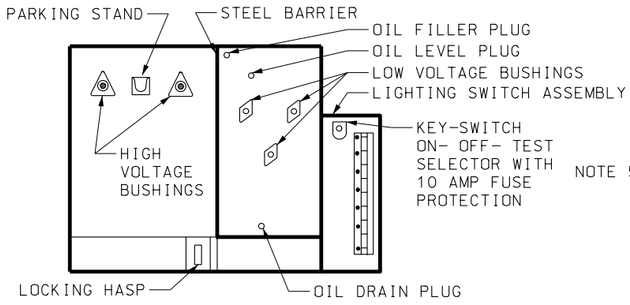
NOTES:

1. POWER COMPANY SERVICE POINT. SINGLE PHASE VOLTAGE WITH DISCONNECTING PROVISIONS. POWER COMPANY TO RUN UNDER GROUND CABLE CONNECTION IN CONTRACTOR FURNISHED TRENCH TO TRANSFORMER HIGH VOLTAGE TERMINALS.
   A-CONTACT SERVING POWER COMPANY TO VERIFY PRIMARY VOLTAGE AND TYPE OF CONNECTION.
   B-NOTIFIY SERVING POWER COMPANY A MINIMUM OF 24 HOURS IN ADVANCE OF DESIRED POWER SOURCE CONNECTION.
2. GROUND TRANSFORMER FRAME.
3. FOUNDATION MOUNTED TRANSFORMER WITH DEAD FRONT DESIGN.
4. LIGHTING SWITCH ASSEMBLY WITH LOAD FUSE BLOCK, FUSES, AND CONDUITS FOR LIGHTING CIRCUITS AS PER PLANS.
5. INDIVIDUAL LIGHTING CIRCUITS TO TYPE I DOUBLE JUNCTION BOXES.
6. PHOTO ELECTRIC CONTROL AND MOUNTING RECEPTACLE: STRAP MOUNTED AT TOP OF NEAREST LIGHT POLE (INCLUDE CONTROL CIRCUIT IN LIGHTING CIRCUIT CONDUIT) OR MOUNTED 10 FEET HIGH ON 2 INCH DIA. GALVANIZED RIGID STEEL PIPE LOCATED NEXT TO TRANSFORMER.
7. POWER POLE MOUNTED LIGHTNING ARRESTERS REQUIRED.
8. PROVIDE WELL DRAINED TRANSFORMER PAD LOCATION. EXACT LOCATION OF PAD AND JUNCTION BOXES DETERMINED BY ENGINEER.

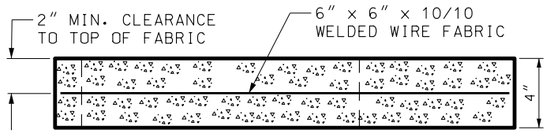


DIMENSION "C"		
25 TO 50 KVA	75 KVA	100 KVA
58"	66"	66"

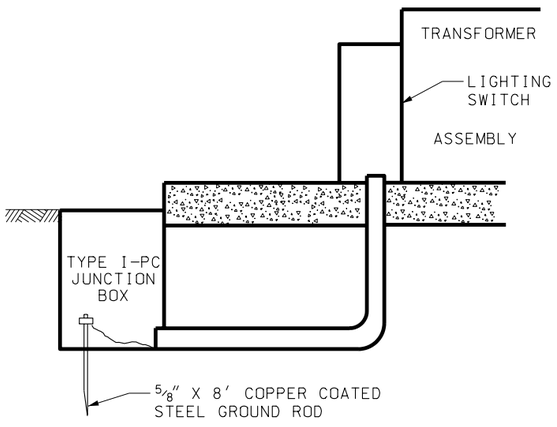
TRANSFORMER FOUNDATION PLAN



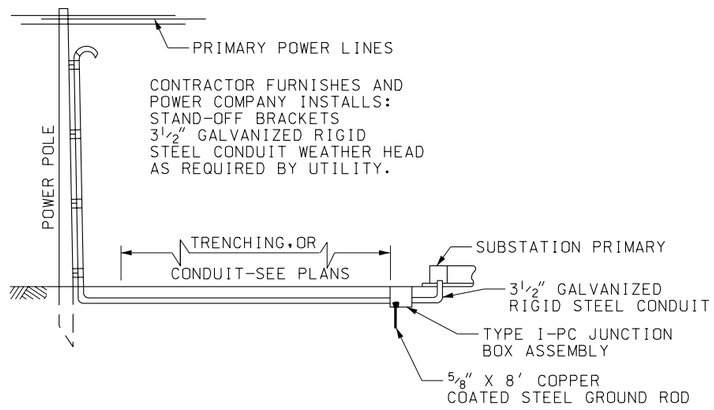
FRONT VIEW, DOOR OPEN



REINFORCED CONCRETE



SIDE VIEW



PRIMARY POWER SOURCE DETAIL

REVISIONS

NO.	DATE	APPR.	REMARKS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — DEPUTY DIRECTOR — JAN.01.2005 DATE

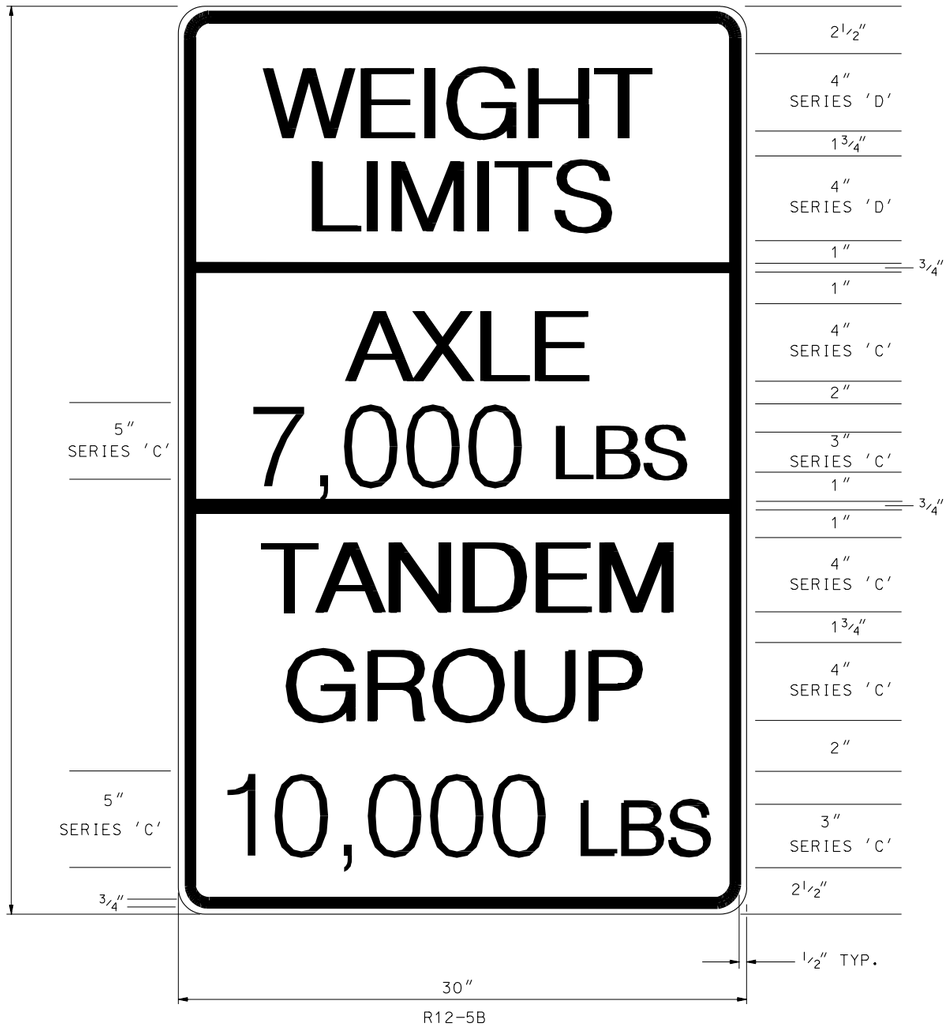
CHAIRMAN STANDARDS COMMITTEE APPROVED — JAN.01.2005 DATE

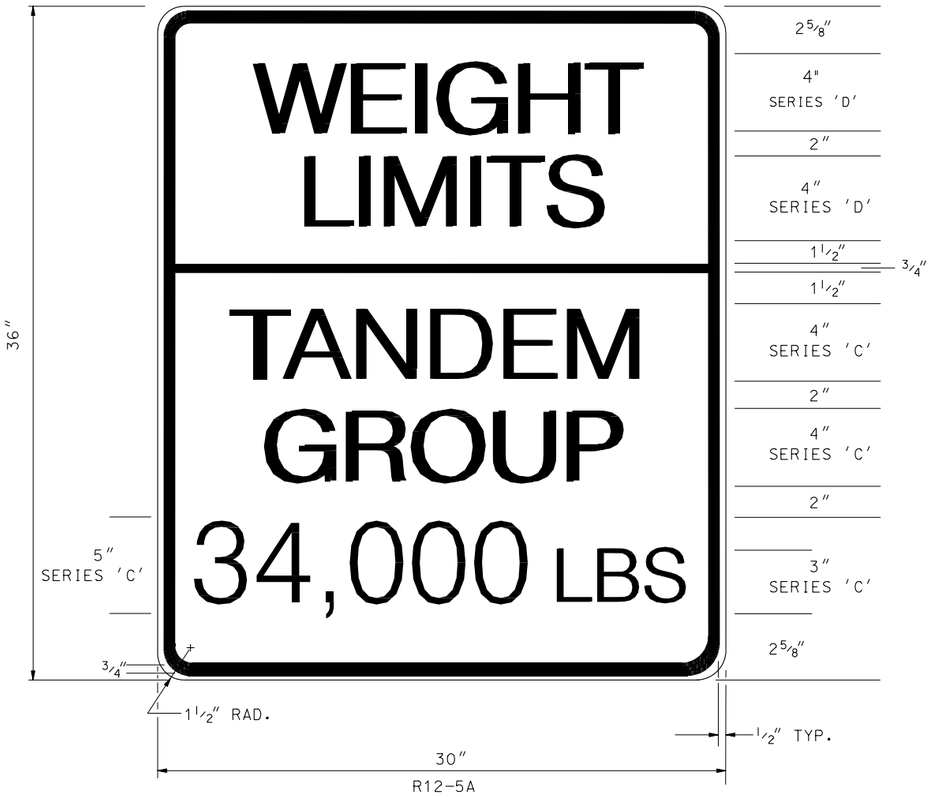
SINGLE TRANSFORMER SUBSTATION DETAILS

STANDARD DRAWING TITLE

STD DWG
SL 18

DGN File:N:\Esd\Standard Drawings\Imperial\2005Approved\Signals (SL)\sl18.dgn
15-DEC-2004





REVISIONS

NO.	DATE	APPR.	REMARKS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

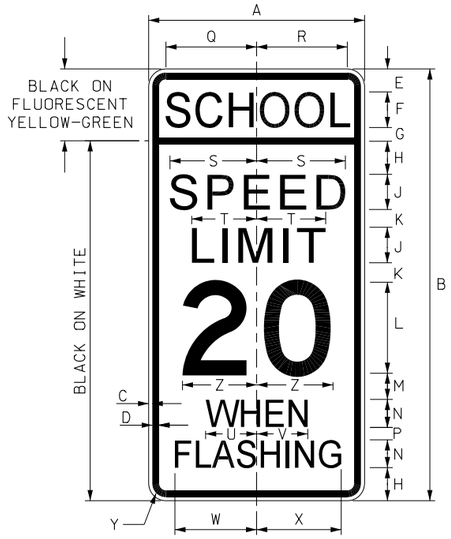
RECOMMENDED FOR APPROVAL — JAN.01.2005 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — JAN.01.2005 DATE
DEPUTY DIRECTOR

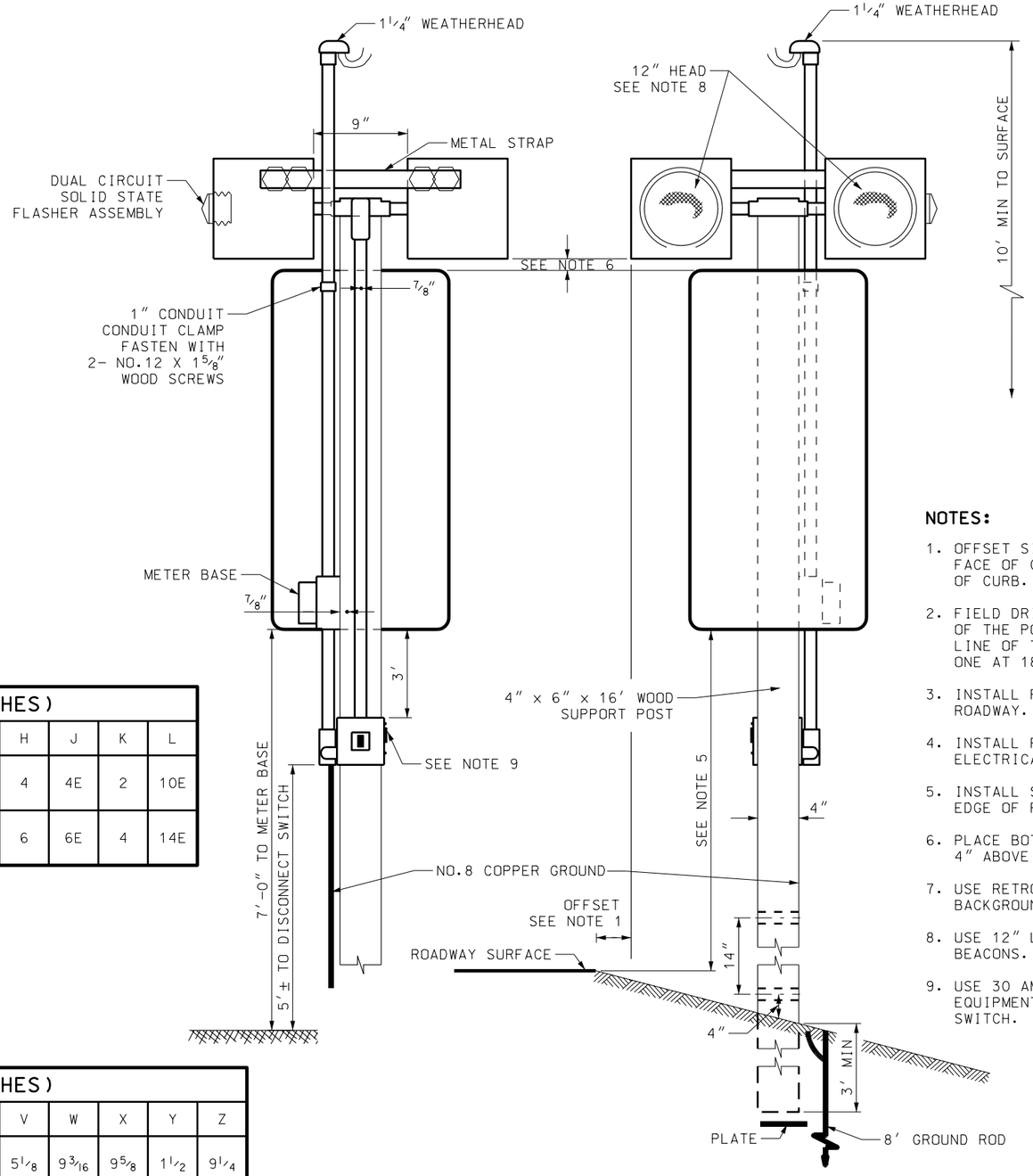
BRIDGE LOAD LIMITS SIGNS

STANDARD DRAWING TITLE

STD DWG
SN 1

DGN File:N:\East\Standard Drawings\Imperial\2005Approved\Signs (SN)\sn01.dgn
15-DEC-2004





SIGN	DIMENSION (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
CONVENTIONAL ROAD	24	48	3/8	5/8	2 1/2	4D	1 1/2	4	4E	2	10E
SPECIAL	36	72	5/8	7/8	3 3/4	6D	2 1/4	6	6E	4	14E

SIGN	DIMENSION (INCHES)											
	M	N	P	R	S	T	U	V	W	X	Y	Z
CONVENTIONAL ROAD	3	2 1/2 D	2	10 1/4	9 9/16	7 7/16	5 3/16	5 1/8	9 3/16	9 5/8	1 1/2	9 1/4
SPECIAL	4	4D	2	15 3/8	14 3/8	11	6 15/16	6 13/16	12 1/4	12 7/8	2 1/4	13 7/8

NOTES:

1. OFFSET SIGN ASSEMBLY A MINIMUM OF 1.5 FT. FROM FACE OF CURB OR 6 FT. FROM TRAVELED WAY IN ABSENCE OF CURB.
2. FIELD DRILL TWO 1 1/2" DIAMETER HOLES IN THE CENTER OF THE POST. DRILL PERPENDICULAR TO THE CENTER LINE OF THE ROAD. PLACE ONE HOLE AT 4 INCHES AND ONE AT 18 INCHES ABOVE GROUND LINE.
3. INSTALL FACE OF SIGN AT 90° ANGLE TO THE EDGE OF ROADWAY.
4. INSTALL POWER SUPPLY IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE.
5. INSTALL SIGN 7 FEET AS MEASURED FROM THE NEAREST EDGE OF ROADWAY SURFACE TO BOTTOM OF SIGN.
6. PLACE BOTTOM OF SPEED LIMIT SIGN BEACON ASSEMBLY 4" ABOVE TOP OF SIGN.
7. USE RETROREFLECTIVE SIGN SHEETING FOR ALL BACKGROUNDS, COLORS AS NOTED.
8. USE 12" LED YELLOW BEACONS FOR SPEED LIMIT SIGN BEACONS.
9. USE 30 AMP WEATHERPROOF DISCONNECT SWITCH EQUIPMENT. GROUND NEUTRAL TO THE FRAME AT THE SWITCH.

REVISIONS

NO.	DATE	APPR.	REMARKS

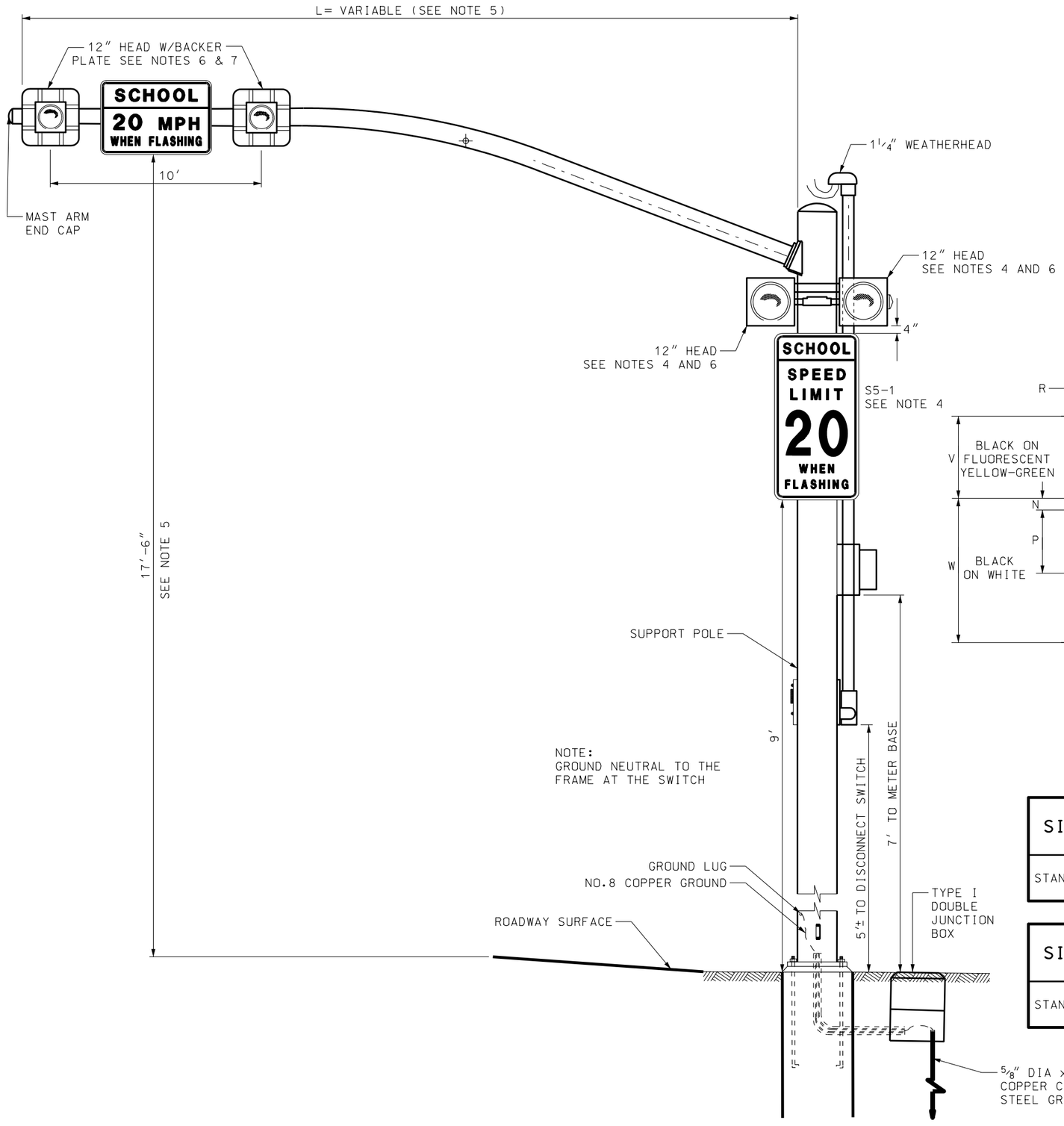
UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

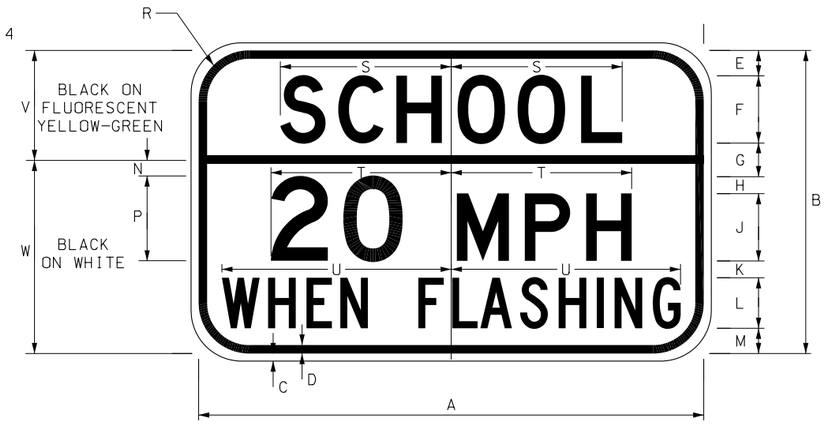
RECOMMENDED FOR APPROVAL — JAN.01.2005 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — JAN.01.2005 DATE
DEPUTY DIRECTOR

SCHOOL SPEED LIMIT ASSEMBLY
STANDARD DRAWING TITLE

STD DWG
SN 2

DGN File:N:\Esa\Standard Drawings\Imperial\2005Approved\Signs (SN)\sn02.dgn
15-DEC-2004





NOTES:

1. USE CURRENT EDITION OF AASHTO ROADSIDE DESIGN GUIDE FOR CLEAR ZONE REQUIREMENTS.
2. POLES, ARMS AND FOUNDATIONS SEE STD DWG SL 1 AND SL 2.
3. USE RETROREFLECTIVE SIGN SHEETING FOR ALL BACKGROUNDS, COLORS AS NOTED.
4. SEE STD DWG SN 2 FOR DESIGN OF S5-1 SIGN AND SPEED LIMIT SIGN BEACON ASSEMBLY.
5. CENTER OVERHEAD SIGN OVER THROUGH TRAFFIC LANE(S).
6. USE 12" LED YELLOW BEACONS.
7. USE BLACK LIGHT-WEIGHT LOUVERED BACKER PLATE PROVIDING 5 INCH REVEAL ON ALL SIDES.
8. INSTALL POWER SUPPLY IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE.
9. USE 30 AMP WEATHERPROOF DISCONNECT SWITCH EQUIPMENT. GROUND NEUTRAL TO THE FRAME AT THE SWITCH.

SIGN	DIMENSION (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
STANDARD	60	36	5/8	7/8	3	8D	2	4	8D	2	6C

SIGN	DIMENSION (INCHES)								
	M	N	P	R	S	T	U	V	W
STANDARD	3	2	10D	2 1/4	20 1/4	21 3/8	27 1/4	24	12

REVISIONS

NO.	DATE	APPR.	REMARKS

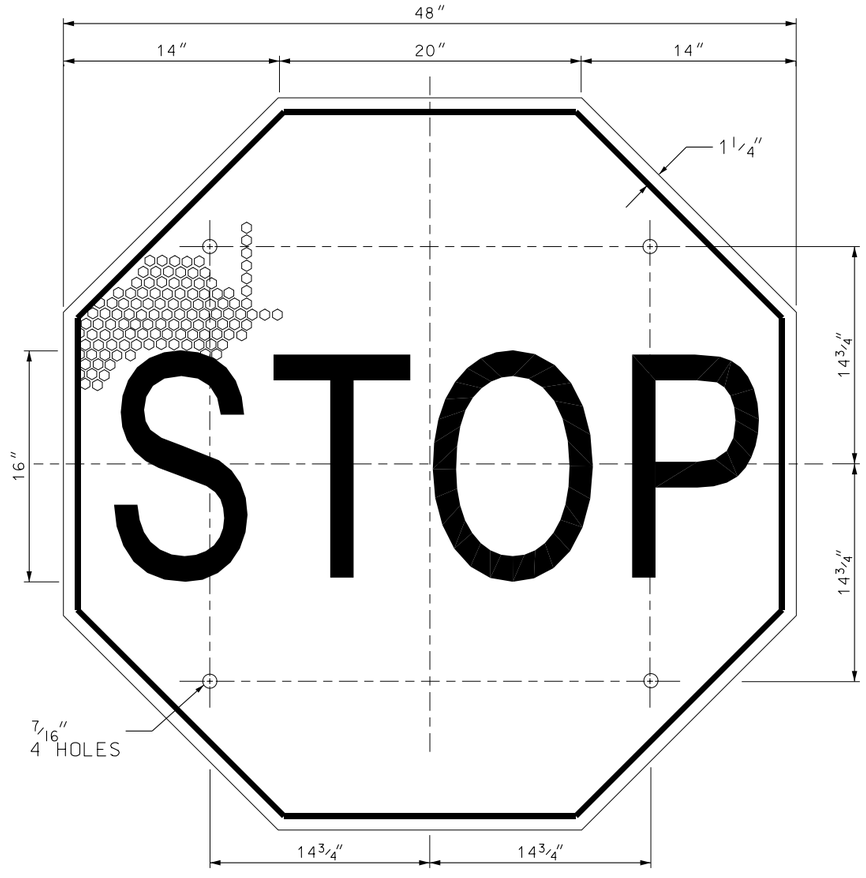
UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION

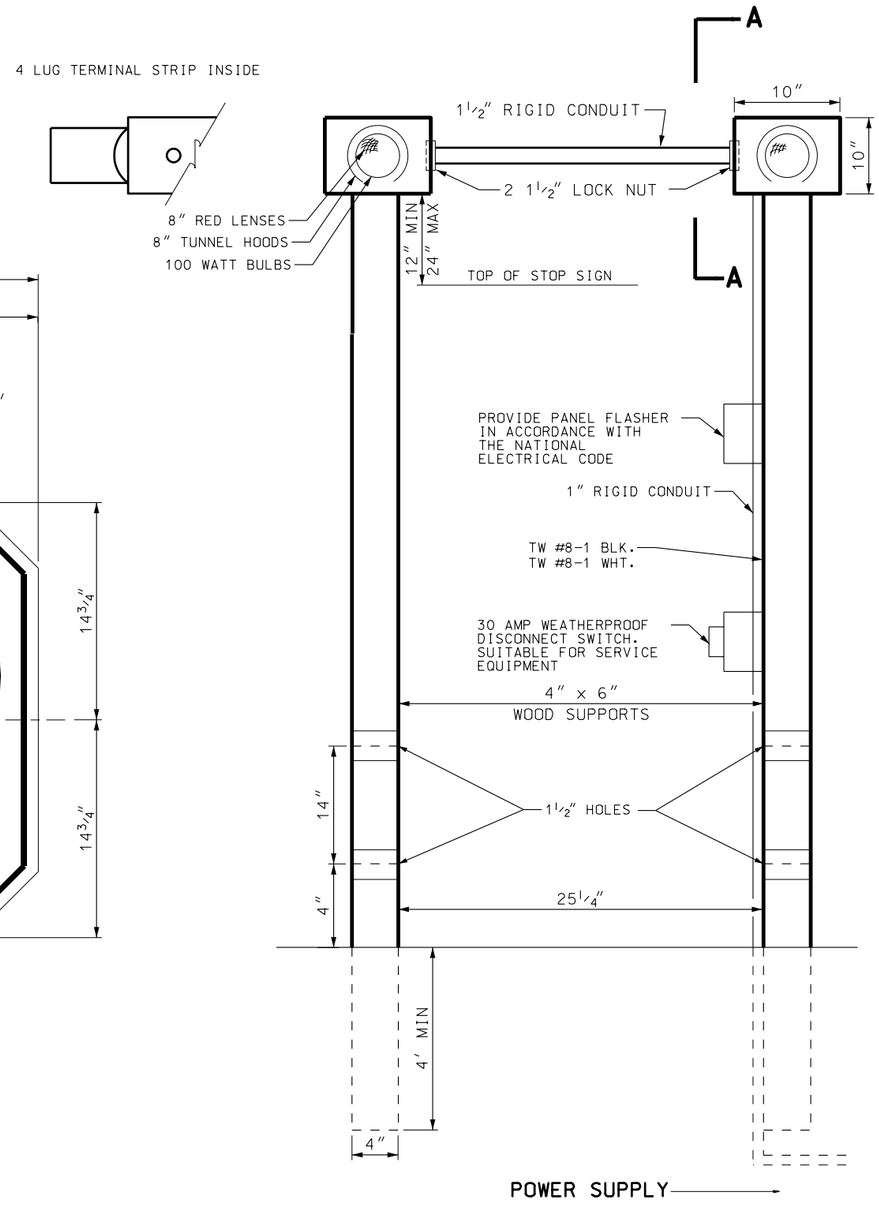
RECOMMENDED FOR APPROVAL — JAN.01.2005 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — JAN.01.2005 DATE
DEPUTY DIRECTOR

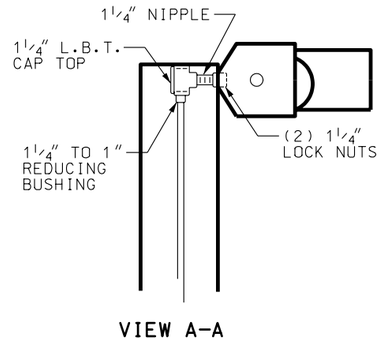
OVERHEAD SCHOOL SPEED LIMIT ASSEMBLY
STANDARD DRAWING TITLE

STD DWG
SN 3

DGN File:N:\Esa\Standard Drawings\Imperial\2005Approved\Signs (SN)\sn03.dgn
15-DEC-2004







VIEW A-A

1. MAINTAIN A MINIMUM SIGN OFFSET OF:
   A: 1′ FROM FACE OF CURB.
   B: 6′ FROM TRAFFIC LANE IN ABSENCE OF CURB OR PAVED SHOULDER.
2. INSTALL SIGN A MIN. OF 7′ AS MEASURED FROM THE NEAREST EDGE OF ROADWAY TO THE BOTTOM OF SIGN.
3. INSTALL FACE OF SIGN AT 90° ANGLE TO THE ROADWAY ℄.
4. OPERATE DUAL FLASHER AND METER BASE ON 110 VOLTS. MOUNT FLASHER AND METER BASE ON POWER POLE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
5. FIELD DRILL TWO 1½″ DIAMETER HOLES IN THE CENTER OF THE POST. DRILL PERPENDICULAR TO THE CENTER LINE OF THE ROAD. PLACE ONE HOLE AT 4 INCHES AND ONE AT 18 INCHES ABOVE GROUND LINE.

REVISIONS

NO.	DATE	APPR.	REMARKS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

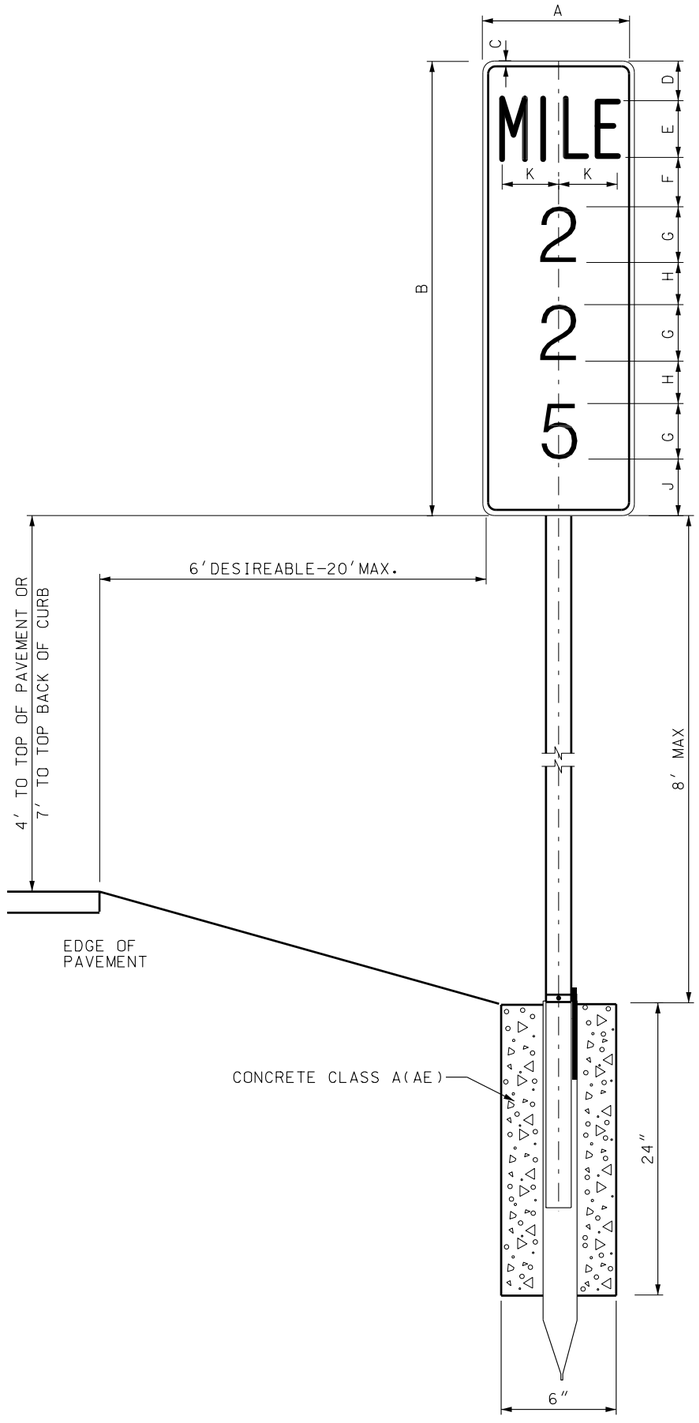
RECOMMENDED FOR APPROVAL — JAN.01.2005 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — JAN.01.2005 DATE
DEPUTY DIRECTOR

FLASHING STOP SIGN
STANDARD DRAWING TITLE

STD DWG
SN 4

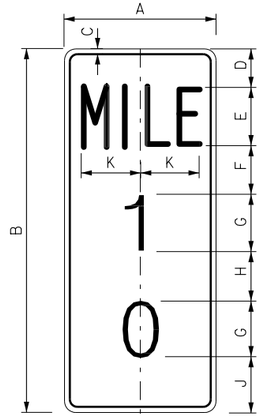
DGN File:N:\Esa\Standard_Drawings\Imperial\2005Approved\Signs (SN)\sn04.dgn
15-DEC-2004

D10-3

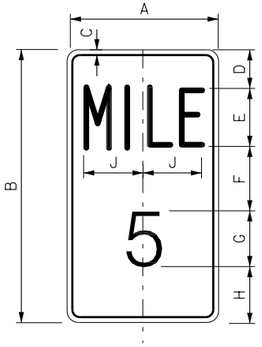


TYPICAL INSTALLATION

D10-2



D10-1



D10-3

A	B	C	D
10	30	0.38	3
12	48	0.38	2.2

E	F	G	H
4B	3	4D	2.5
5D	2.8	10D	2.8

J	K	L	
3	3.9	1.5	
2.5	4.9	1.5	

D10-2

A	B	C	D
10	24	0.38	3
12	36	0.38	3

E	F	G	H
4B	3	4D	3
5D	2.5	10D	2.5

J	K	L
3	3.9	1.5
3	4.9	1.5

D10-1

A	B	C	D
10	18	0.38	2.5
12	24	0.38	3

E	F	G	H
4B	4	4D	3.5
5D	3	10D	3

J	K
3.9	1.5
4.9	1.5

NOTES:

1. USE: 12″ WIDE FOR INTERSTATE
   10″ ALL OTHER HIGHWAYS.
2. REFLECTORIZED WHITE LEGEND AND BORDER ON A REFLECTORIZED GREEN BACKGROUND.
3. DO NOT EXCEED 8′ MOUNTING HEIGHT FROM BOTTOM OF SIGN TO THE GROUND WHILE MAINTAINING 4′ MINIMUM HEIGHT ABOVE PAVEMENT EDGE.
4. USE "TUBULAR STEEL SIGN POST (P2)". FASTEN PANEL WITH 5/16″x 3″ S.S. BOLT; LOCK NUT, USE 5/16″ NYLON WASHER AGAINST SIGN FACE.

REVISIONS

NO.	DATE	APPR.	REMARKS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — JAN.01.2005 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — JAN.01.2005 DATE
DEPUTY DIRECTOR

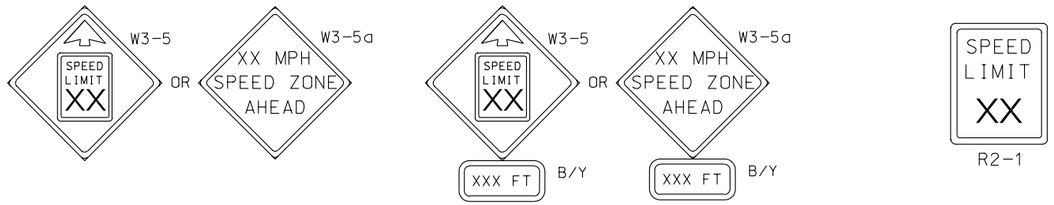
TYPICAL INSTALLATION FOR MILEPOST SIGNS

STANDARD DRAWING TITLE

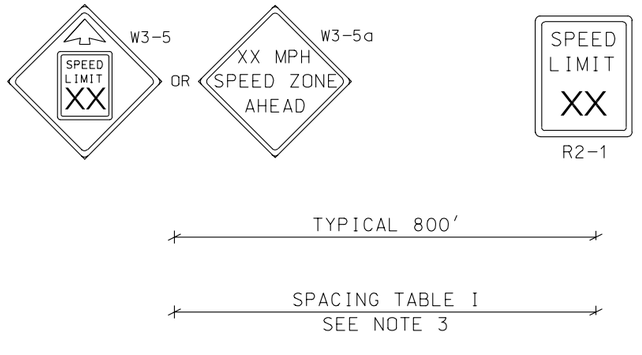
STD DWG
SN 5

DGN File:N:\Eng\Standard Drawings\Imperial\2005Approved\Signs (SN)\sn05.dgn
15-DEC-2004

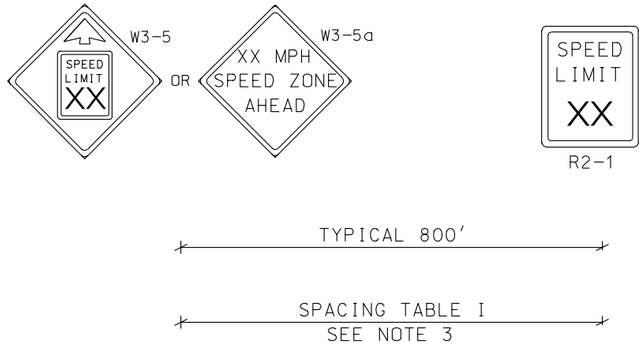
FOR REDUCTION OF 20 MPH OR GREATER



FOR REDUCTION OF 15 MPH (SEE NOTE 4)



FOR REDUCTION 10 MPH OR LESS (OPTIONAL)



NOTES:

1. USE MINIMUM R2-1 SIGN SIZE OF 36 INCHES x 48 INCHES FOR CONVENTIONAL ROADS AND EXPRESSWAYS.

   USE R2-1 SIGN SIZE OF 48 INCHES x 60 INCHES FOR FREEWAYS.

   USE W3-5 (OR W3-5a) SIGN SIZE OF 48 INCHES x 48 INCHES.

2. USE 800 FEET TYPICAL SIGN SPACING.

3. USE TABLE I FOR OPTIONAL SIGN SPACING UPON DIRECTION OF THE REGION TRAFFIC ENGINEER.

4. USE OF THREE SIGN SEQUENCE OPTIONAL FOR SPEED REDUCTION OF 15 MPH.

5. DO NOT MIX W3-5 AND W3-5A SIGNS IN THE SAME SIGNING SEQUENCE.

TABLE I

REDUCED SPEED (MPH) \ MINIMUM SPEED SIGNING PLACEMENT APPROACH SPEED MPH	75	70	65	60	55	50	45	40	35	30
70	470									
65	790	430								
60	1080	720	390							
55	1360	1000	660	350						
50	1620	1250	910	600	310					
45	1830	1470	1140	820	540	270				
40	2040	1670	1340	1030	740	470	230			
35	2220	1850	1520	1200	920	650	410	200		
30	2380	2000	1670	1360	1070	810	570	350	160	
25	2520	2140	1800	1490	1200	940	700	480	290	120
20	2630	2240	1910	1600	1310	1040	800	590	390	230
15	2720	2320	1990	1680	1390	1130	890	670	480	310

SOURCE: TRAFFIC CONTROL DEVICES HANDBOOK 2001

REVISIONS

NO.	DATE	APPR.	REMARKS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

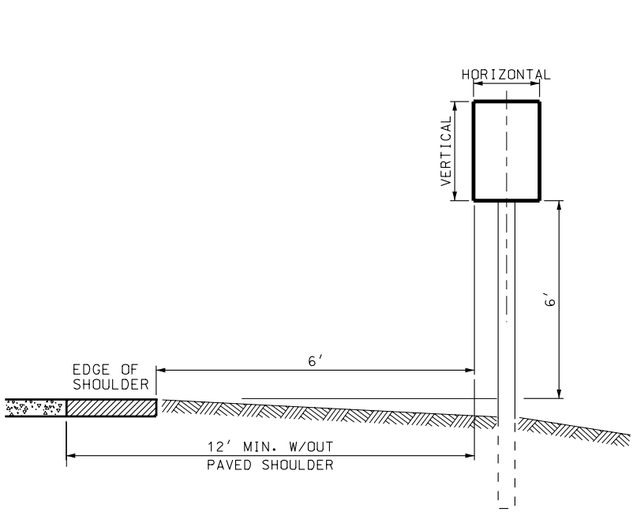
RECOMMENDED FOR APPROVAL — JAN.01.2005 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — JAN.01.2005 DATE
DEPUTY DIRECTOR

SPEED REDUCTION SIGN SEQUENCE

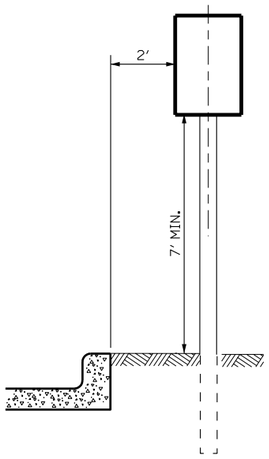
STANDARD DRAWING TITLE

STD DWG
SN 6

REGULATORY, WARNING, ROUTE MARKERS

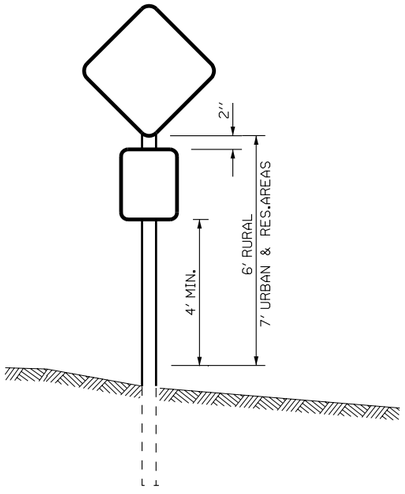


RURAL

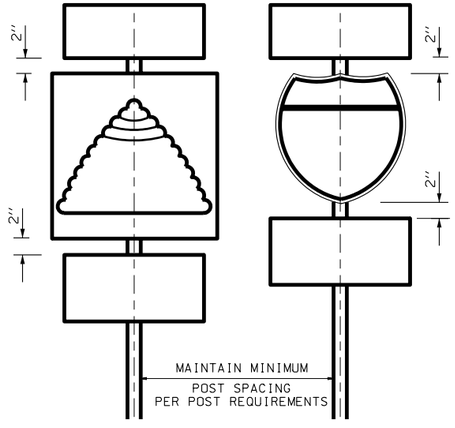


RESIDENTIAL – URBAN

SIGN INSTALLATION

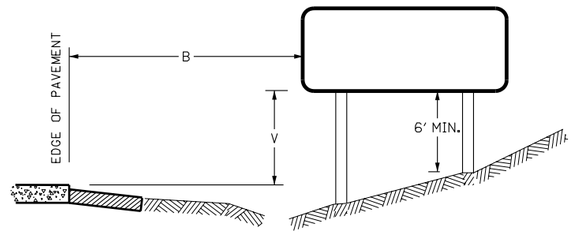


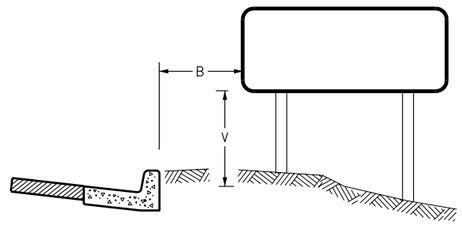
W/SUPPLEMENTAL SIGN

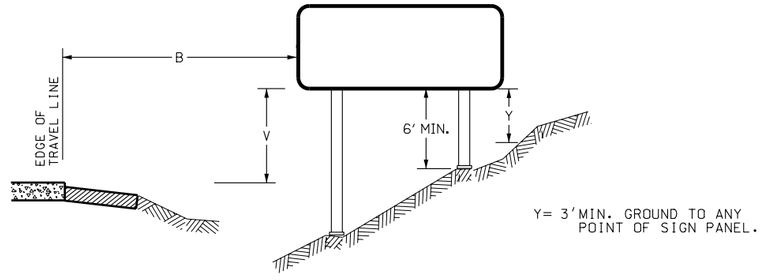


ROUTE MARKERS

GUIDE & DIRECTIONAL SIGNING







GUIDE & DIRECTIONAL SIGN PLACEMENT

(B) LATERAL PLACEMENT			(V) VERTICAL PLACEMENT		
CONVENTIONAL		INTERSTATE	INTERSTATE	CONVENTIONAL	
RURAL	URBAN			RURAL	URBAN
6' – 12' FROM EDGE OF PAVEMENT OR SHOULDER	2' MIN WITH CURB	DESIRABLE – 30' FROM TRAVEL LANE ACCEPTABLE– 12' MIN FROM EDGE OF SHOULDER	DESIRABLE – 7' ACCEPTABLE – 6'	6'	7'
	2' MIN PLUS SHOULDER		7'		
	WITHOUT CURB	2' MIN WHEN BEHIND BARRIER	7'		

REVISIONS

NO.	DATE	APPR.	REMARKS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

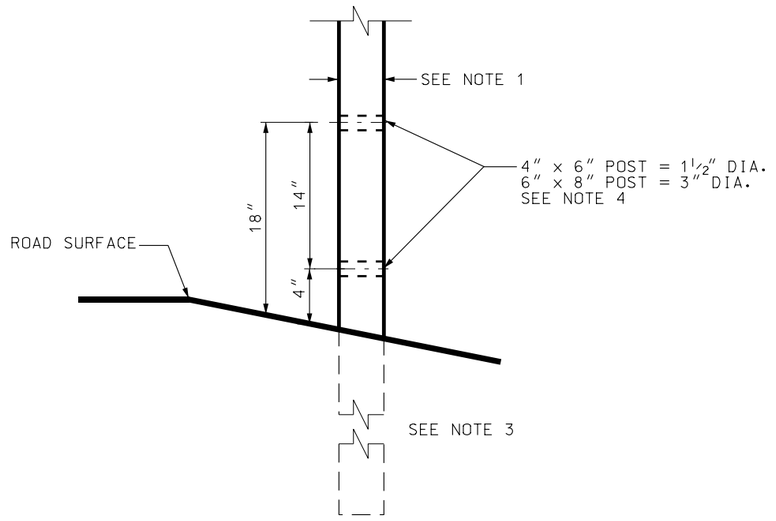
RECOMMENDED FOR APPROVAL — JAN.01.2005 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — JAN.01.2005 DATE
DEPUTY DIRECTOR

PLACEMENT OF GROUND MOUNT SIGNS

STANDARD DRAWING TITLE

STD DWG
SN 7

DGN File:N:\Eas\Standard_Drawings\Imperial\2005Approved\Signs (SN)\sn07.dgn
15-DEC-2004



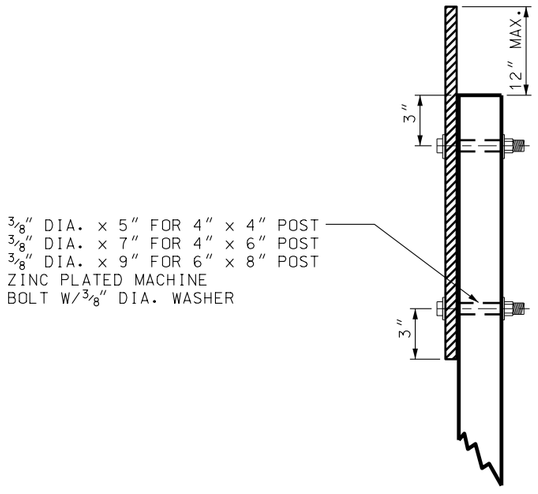
WEAKENED POST DETAIL

TIMBER SIGN POSTS (Nominal)

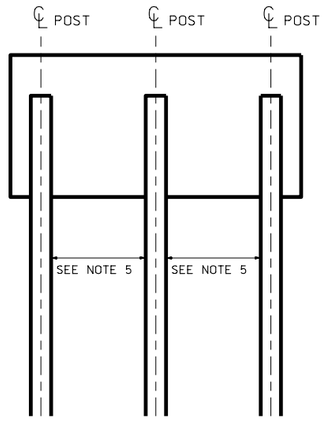
HORIZONTAL SIGN DIMENSION (inches)

VERTICAL SIGN DIMENSION (inches)	12	24	36	48	60	72	84	96	108	120	132	144
12	1 – 4x4 4	1 – 4x4 4	1 – 4x4 4	1 – 4x4 4	2 – 4x4 4	2 – 4x4 4	2 – 4x4 4	2 – 4x4 4	2 – 4x4 4	2 – 4x4 4	2 – 4x4 4	2 – 4x4 4
18	1 – 4x4 4	1 – 4x4 4	1 – 4x4 4	1– 4x6 4	2 – 4x4 4	2 – 4x4 4	2 – 4x4 4	2 – 4x6 4	2 – 4x6 4	2 – 4x6 4	2 – 4x6 4	2 – 4x6 4
24	1 – 4x4 4	1 – 4x4 4	1– 4x6 4	1– 4x6 4	2 – 4x4 4	2 – 4x6 4	2 – 4x6 4	2 – 4x6 4	2 – 4x6 4	2 – 4x6 4	2 – 4x6 4	2 – 4x6 4
30	1 – 4x4 4	1 – 4x4 4	1– 4x6 4	1– 4x6 4	2 – 4x6 4	2 – 4x6 4	2 – 4x6 4	2 – 4x6 4	2 – 4x6 4	2 – 4x6 4	3 – 4x6 4	3 – 4x6 4
36	1 – 4x4 4	1– 4x6 4	1– 4x6 4	1– 4x6 4	2 – 4x6 4	2 – 4x6 4	2 – 4x6 4	2 – 4x6 4	3 – 4x6 4	3 – 4x6 4	3 – 4x6 4	3 – 4x6 4
42	1 – 4x4 4	1– 4x6 4	1– 4x6 4	1– 4x6 4	2 – 4x6 4	2 – 4x6 4	2 – 4x6 4	3 – 4x6 4	3 – 4x6 4	3 – 4x6 4	2 – 6x8 5	2 – 6x8 5
48	1 – 4x4 4	1– 4x6 4	1– 4x6 4	2 – 4x6 4	2 – 4x6 4	2 – 4x6 4		3 – 4x6 4	3 – 4x6 4	2 – 6x8 4	2 – 6x8 5	2 – 6x8 5
54	1 – 4x4 4	1– 4x6 4	1– 6x8 5	2 – 4x6 4	2 – 4x6 4	1– 6x8 5		2 – 6x8 5	2 – 6x8 5	2 – 6x8 5	2 – 6x8 5	2 – 6x8 5
60	1– 4x6 4	1– 4x6 4	1– 6x8 5	2 – 4x6 4	1– 6x8 5	1– 6x8 5		2 – 6x8 5	2 – 6x8 5	2 – 6x8 5	2 – 6x8 5	2 – 6x8 5
66	1– 4x6 4	1– 4x6 4	1– 6x8 5	2 – 4x6 4	1– 6x8 5			2 – 6x8 5	2 – 6x8 5	2 – 6x8 5	2 – 6x8 5	
72	1– 4x6 4	1– 6x8 5	1– 6x8 5	1– 6x8 5	1– 6x8 5			2 – 6x8 5	2 – 6x8 5	2 – 6x8 5		

LEGEND: 2 – 4x6 / 5 — NUMBER & SIZE (inch x inch) OF POSTS; EMBEDMENT DEPTH IN FEET



SIDE VIEW



MULTIPLE POST SIGN

NOTES:

1. NARROW POST DIMENSION TO FACE TRAFFIC.
2. USE ONE 4″x 6″ POST FOR MULTIPLE SIGN INSTALLATION ON SINGLE POST, EXCLUDING ROUTE MARKERS.
3. MINIMUM DEPTH OF EMBEDMENT: 4′ UNLESS 5′ IS SHOWN.
4. FIELD DRILL TWO HOLES IN THE CENTER OF THE POST. DRILL PERPENDICULAR TO THE CENTER LINE OF THE ROAD.
5. MINIMUM SPACING BETWEEN POST:

	POST SIZE	SPACING
FOR 3 OR MORE POSTS	4″ x 4″	= 4′
FOR 3 OR MORE POSTS	4″ x 6″	= 4′
FOR 2 OR MORE POSTS	6″ x 8″	= 7′

REVISIONS

NO.	DATE	APPR.	REMARKS
1	04/28/05	B.A.	CORRECTED NOTE CALLOUT IN WEAKENED POST DETAIL.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — APR.28.2005 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — APR.28.2005 DATE
DEPUTY DIRECTOR

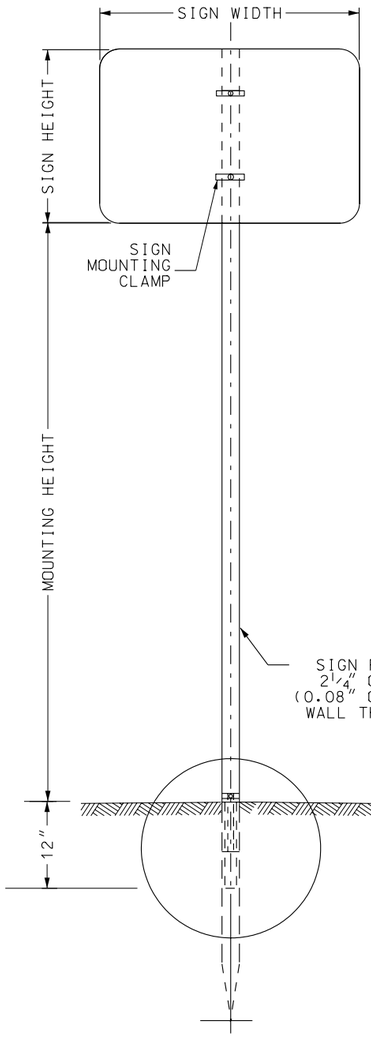
GROUND MOUNTED TIMBER SIGN POST (P1)
STANDARD DRAWING TITLE

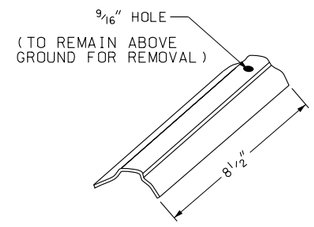
STD DWG
SN 8

DGN File:L:\Standard Drawings\Imperial\2005Approved\Change2Approved\sn08.dgn
10-MAY-2005

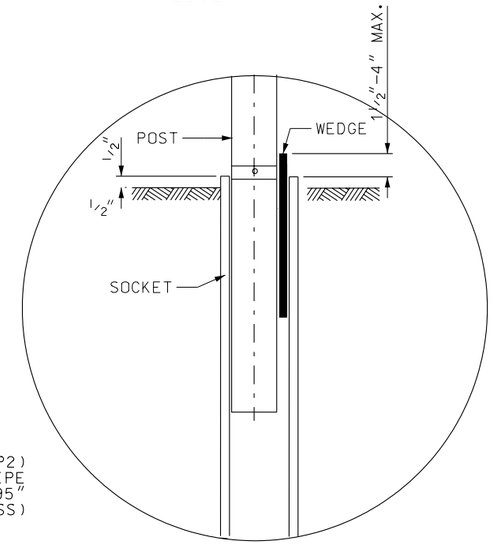
TUBULAR STEEL POST (P2)

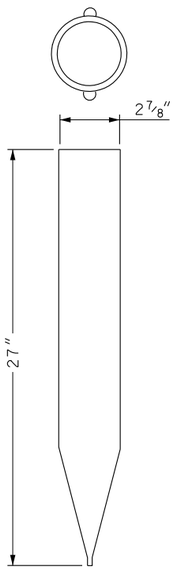
(SOCKET SYSTEM)
(SINGLE OR DOUBLE POST)



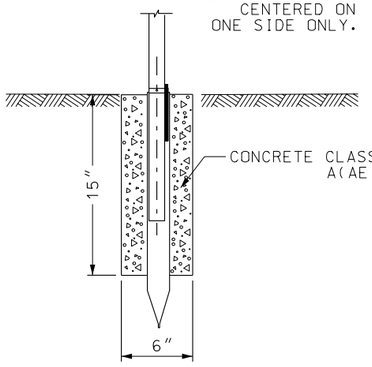


WEDGE





TUBULAR SOCKET



CONCRETE FOUNDATION
SEE NOTE 1

POST NOTES:

POSTS PRE-PUNCHED WITH ⅜" HOLES, MOUNT SIGN DIRECTLY TO POST OR USE AN APPROVED MOUNTING CLAMP. SPACING OF HOLES FROM TOP IN INCHES ARE AS FOLLOWS:

1",3".10",16",21",23",24",27",33",37",39" AND 45"

TUBULAR STEEL SIGN POSTS

VERTICAL SIGN DIMENSION (inch) \ HORIZONTAL SIGN DIMENSION (inch)	12	24	36	48	60	72	84	96	108	120	132	144
12	1 P2	1 P2	1 P2	2 P2	2 P2	2 P2	2 P2	2 P2	2 P2	2 P2	2 P2	2 P2
18	1 P2	1 P2	1 P2	2 P2	2 P2	2 P2	2 P2	2 P2	2 P2	2 P2	2 P2	2 P2
24	1 P2	1 P2	1 P2	2 P2	2 P2	2 P2	2 P2	2 P2	2 P2	2 P2	1 P4	1 P4
30	1 P2	1 P2	1 P2	2 P2	2 P2	2 P2	2 P2	2 P2	1 P4	1 P4	1 P4	1 P4
36	1 P2	1 P2	1 P2	2 P2	2 P2	2 P2	1 P4	1 P4	1 P4	1 P4	1 P4	1 P4
42	1 P2	1 P2	1 P2	2 P2	2 P2	1 P4	1 P4	1 P4	2 P4	2 P4	2 P4	2 P4
48	1 P2	1 P2	2 P2	2 P2	2 P2	1 P4	1 P4	2 P4	2 P4	2 P4	2 P4	2 P4
54	1 P2	1 P2	2 P2	2 P2	1 P4	1 P4	2 P4	2 P4	2 P4	2 P4	2 P4	2 P4
60	1 P2	1 P2	2 P2	2 P2	1 P4	1 P4	2 P4	2 P4	2 P4	2 P4	2 P4	2 P4
66	1 P4	1 P4	1 P4	1 P4	1 P4	2 P4	2 P4	2 P4	2 P4	2 P4		
72	1 P4	1 P4	1 P4	1 P4	1 P4	2 P4	2 P4	2 P4	2 P4	2 P4		

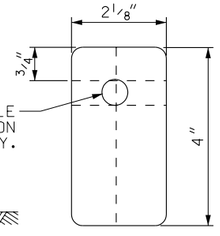
LEGEND: 1 / P4 — NUMBER OF POSTS / TYPE OF POST

P2 = 2 3⁄8" x 0.80 (SOCKET SYM.)
P4 = 2 1⁄2" x SCH. 80 (SLIPBASE)
REFER TO STD DWG SN 11

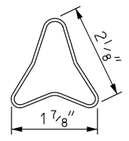
NOTES:

1. FOR SOFT SOIL CONDITIONS USE TRIANGULAR STEEL SIGN POST ANCHOR OR PLACE TUBULAR SOCKET IN A 6" DIAMETER BY 15" DEEP CONCRETE FOUNDATION.
2. YELLOW POSTS MAYBE USED FOR LEFT SIDE (MEDIAN) SIGN INSTALLATIONS AND FOR SIGN LOCATIONS HAVING A HIGH PROBABLY OF IMPACTS AS DETERMINED BY THE REGION TRAFFIC ENGINEER.
3. P4 SIGN POST MAY BE USED FOR MOST SMALL AREA SIGN. CALCULATE POST NEEDS AT 30 square feet OF SIGN PER POST. SEE STANDARD FOR POST SPACING.

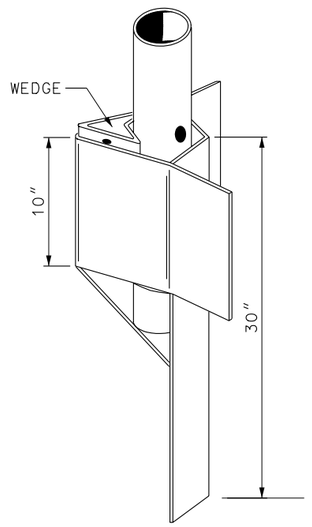
WEDGE



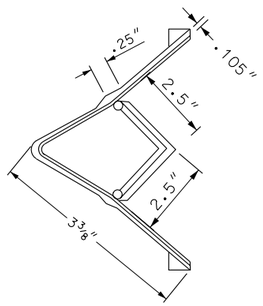
SIDE VIEW



TOP VIEW



TRANGULAR STEEL SIGN POST ANCHOR
SEE NOTE 1



TOP VIEW

NO.	DATE	APPR.	REMARKS

REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — JAN.01.2005 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — JAN.01.2005 DATE
DEPUTY DIRECTOR

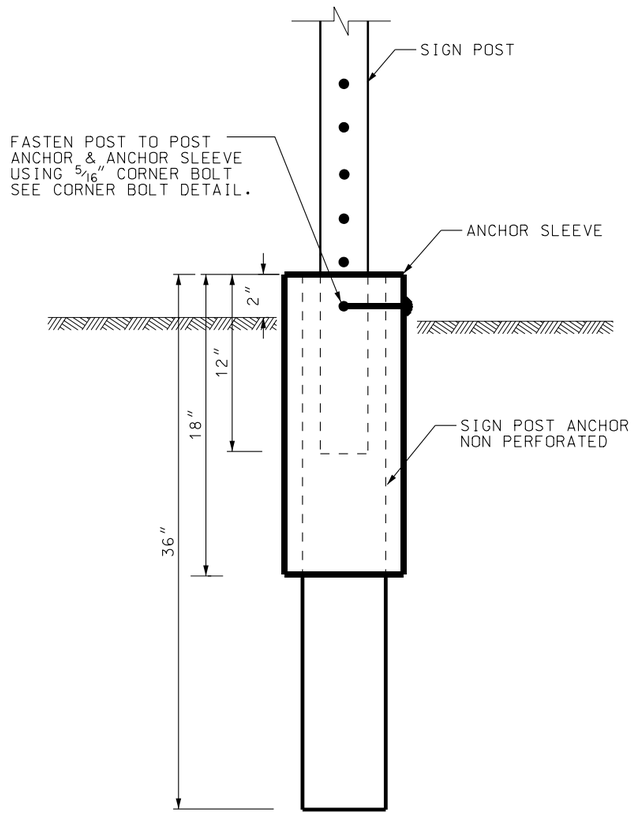
GROUND MOUNTED TUBULAR STEEL SIGN POST (P2)

STANDARD DRAWING TITLE

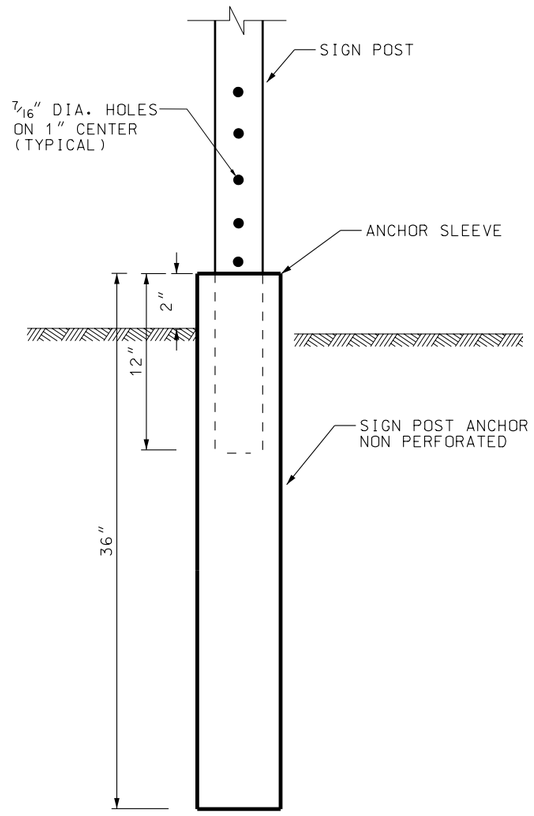
STD DWG
SN 9

DGN File: N:\Esd\Standard Drawings\Imperial\2005Approved\Signs (SN)\sn09.dgn
15-DEC-2004

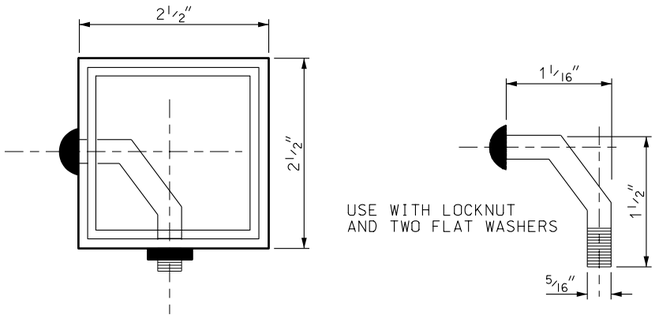
SIGN INSTALLATION



TYPICAL INSTALLATION ,
HIGH IMPACT AREAS
(TWO PIECE BREAKAWAY ANCHOR)



TYPICAL INSTALLATION
(W/ONE PIECE BREAKAWAY ANCHOR)



CORNER BOLT DETAIL

SQUARE STEEL SIGN POSTS

VERTICAL SIGN DIMENSION (inches) \ HORIZONTAL SIGN DIMENSION (inches)	12	24	36	48	60	72	84	96	108	120	132	144
12	1 T1	1 T1	1 T1	1 T1	2 T1	2 T1	2 T1	2 T1	2 T1	2 T1	2 T1	2 T1
18	1 T1	1 T1	1 T1	1 T1	2 T1	2 T1	2 T1	2 T1	2 T1	2 T1	2 T1	2 T2
24	1 T1	1 T1	1 T1	1 T1	2 T1	2 T1	2 T1	2 T1	2 T2	2 T2	2 T2	2 T2
30	1 T1	1 T1	1 T2	2 T1	2 T1	2 T1	2 T2	2 T2	2 T2	2 T2	2 T2	
36	1 T1	1 T1	1 T2	2 T1	2 T1	2 T2	2 T2	2 T2	2 T2			
42	1 T1	1 T2	1 T2	2 T1	2 T2	2 T2	2 T2					
48	1 T1	1 T2	2 T1	2 T2	2 T2	2 T2						
54	1 T1	1 T2	2 T2	2 T2	2 T2							
60	1 T1	1 T2	2 T2	2 T2								
66	1 T1	1 T2	2 T2									
72	1 T1	1 T2	2 T2									

T1 = 2" 12 GAUGE W/2 1/4" ANCHOR, 2 1/2" SLEEVE
T2 = 2 1/2" 12 GAUGE W/3/4" ANCHOR, 3" SLEEVE

NOTE;

1. FOR SOFT SOIL USE TRIANGULAR STEEL SIGN POST ANCHOR: REFER TO STD DWG SN 12

REVISIONS

NO.	DATE	APPR.	REMARKS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

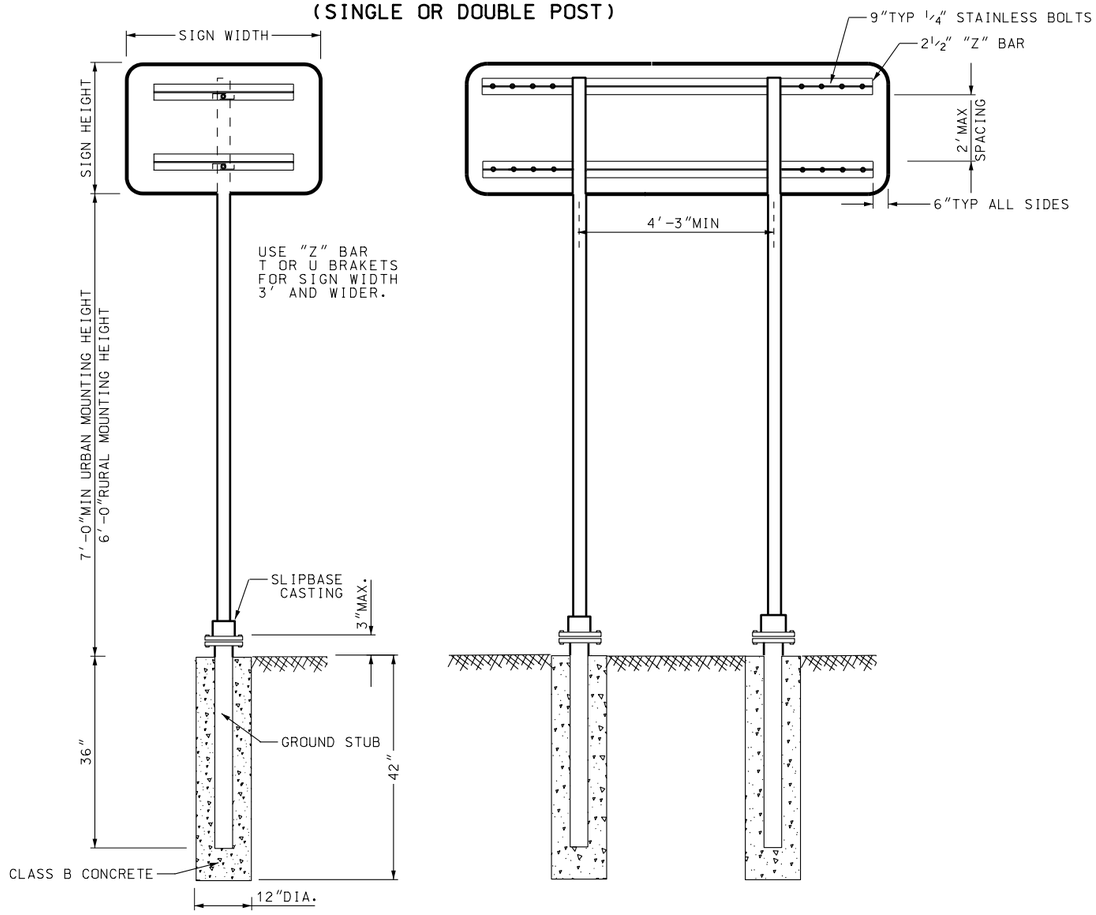
RECOMMENDED FOR APPROVAL — JAN.01.2005 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — JAN.01.2005 DATE
DEPUTY DIRECTOR

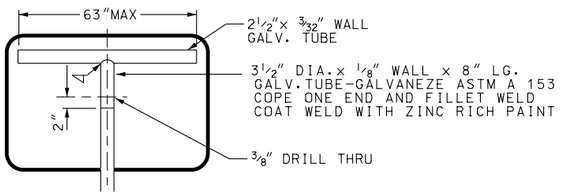
GROUND MOUNTED
SQUARE STEEL
SIGN POST (P3)
STANDARD DRAWING TITLE

STD DWG
SN 10

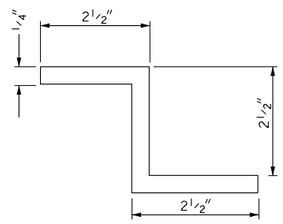
DGN File:N:\Esd\StandardDrawings\Imperial\2005Approved\Signs (SN)\sn10.dgn
15-DEC-2004

TUBULAR STEEL POSTS (P4)
(WITH SLIPBASE)
(SINGLE OR DOUBLE POST)

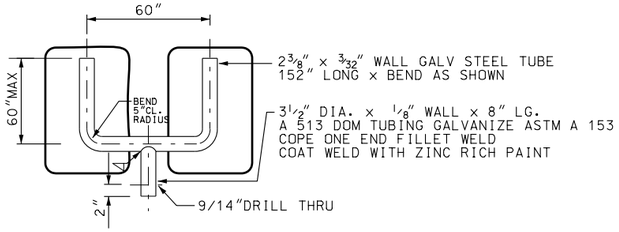




T BRACKET



"Z" BAR – ASTM B 221-6061T6

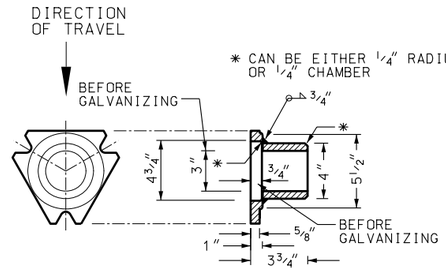


U BRACKET

EXTEND T AND U BRACKETS TO 2" SHORT OF THE EDGE OF THE PANEL.

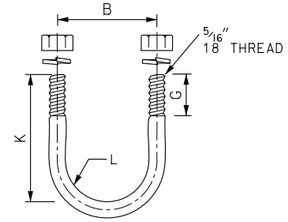
STANDARD PIPE SIZE	A	B	C	D	E	F	G	K	L	R1	R2
2	3 3/4	2 3/4	1 1/2	1 1/8	1/2	3/16	1	2 11/16	1 7/32	1 1/4	1 3/16
2 1/2	4 1/4	3 1/4	2	1 1/4	1/2	1/4	1	3 3/16	1 15/32	1 1/2	1 7/16

DIMENSIONS FOR MOUNTING CLAMP

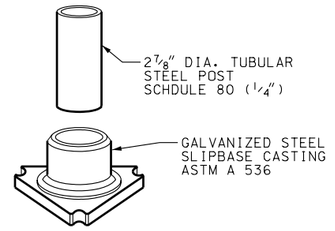


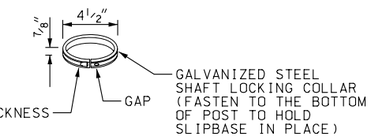
U-BOLT

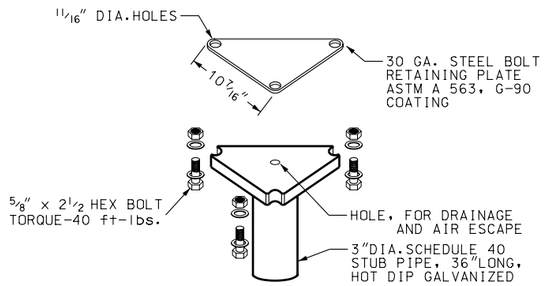
U-BOLT TO BE MADE IN ACCORDANCE WITH STANDARD MANUFACTURING PROCEDURE. 9/32" OR 5/16" DIAMETER STOCK IS PERMISSIBLE. AMERICAN STANDARD REGULAR SEMI-FINISHED HEX NUTS AND LOCKWASHERS.



SLIPBASE CASTING



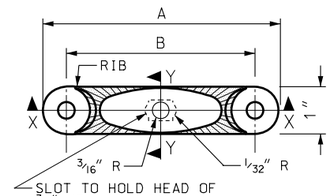


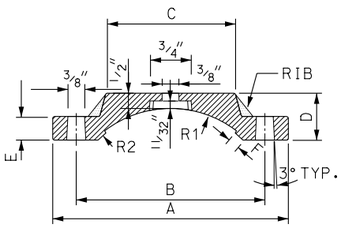


TYPICAL ASSEMBLY

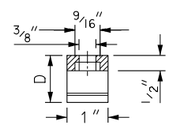
PIPE CLAMP CASTING

PIPE CLAMP CASTING: ASTM B26 OR B108 ALUMINUM ALLOY A444.00-T4 OR 356.0-F. SIGN MOUNTING CLAMP PARTS NOT MADE FROM ALUMINUM: GALVANIZED IN CONFORMANCE WITH ASTM A 153 OR STAINLESS STEEL.

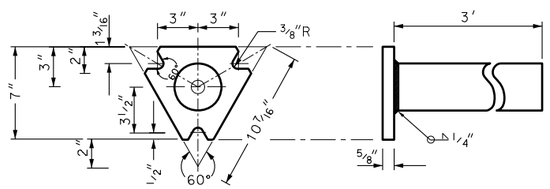




SECTION X-X



SECTION Y-Y



SLIPBASE STUB POST

MOUNTING CLAMP FOR SOCKET OR SLIPBASE

NO.	DATE	APPR.	REMARKS
1	04/28/05	B.A.	CORRECTED DIMENSION CALLOUT IN TYPICAL ASSEMBLY FOR ft-lbs .

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — APR.28,2005 — DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — APR.28,2005 — DATE
DEPUTY DIRECTOR

SLIPBASE
GROUND MOUNTED
TUBULAR STEEL
SIGN POST (P4)

STANDARD DRAWING TITLE

STD DWG
SN 11

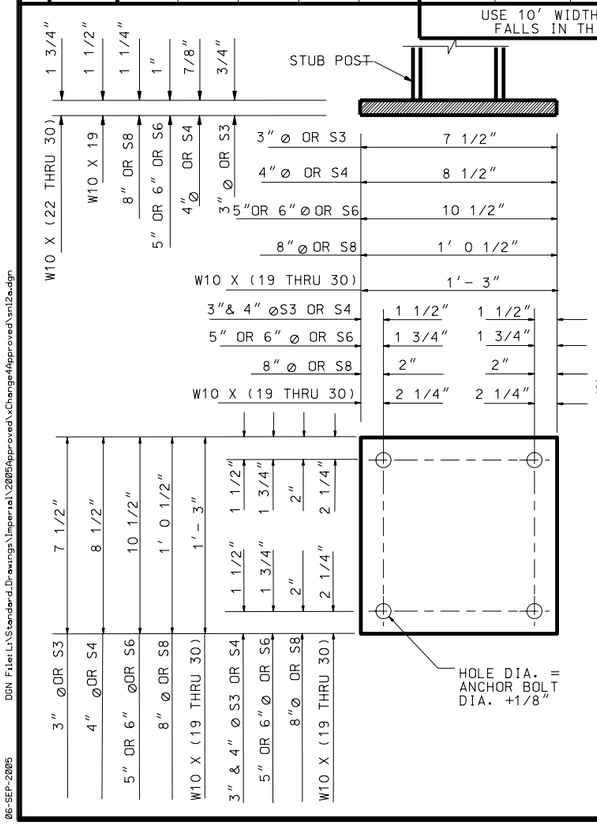
DGN File: L:\Standard_Drawings\Imperial\2005approved\Change2approved\sn11.dgn
18-MAY-2005

VERTICAL SIGN DIMENSION (V)	HORIZONTAL SIGN DIMENSION (W) — ONE POST PER SIGN					TWO POSTS PER SIGN										THREE POSTS PER SIGN								
	1′-0″	2′-0″	3′-0″	4′-0″	5′-0″	6′-0″	7′-0″	8′-0″	9′-0″	10′-0″	11′-0″	12′-0″	13′-0″	14′-0″	15′-0″	16′-0″	17′-0″	18′-0″	19′-0″	20′-0″	21′-0″	22′-0″	23′-0″	24′-0″
1′-0″	3″Ø 3′-0″	3″Ø 3′-0″	3″Ø 3′-0″	3″Ø 3′-0″	3″Ø 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″
1′-6″	3″Ø 3′-0″	3″Ø 3′-0″	3″Ø 3′-0″	3″Ø 3′-0″	3″Ø 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″
2′-0″	3″Ø 3′-0″	3″Ø 3′-0″	3″Ø 3′-0″	3″Ø 3′-0″	3″Ø 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″
2′-6″	3″Ø/ 3′-0″	3″Ø 3′-0″	3″Ø 3′-0″	3″Ø 3′-0″	3″Ø 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S6X12.5 3′-0″	S6X12.5 3′-0″	S6X12.5 3′-0″
3′-0″	3″Ø 3′-0″	3″Ø 3′-0″	3″Ø 3′-0″	3″Ø 3′-0″	4″Ø 3′-0″	S3X5.7 3′-0″	S3X5.7 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S6X12.5 3′-6″	S6X12.5 3′-0″	S6X12.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S4X9.5 3′-0″	S6X12.5 3′-6″	S6X12.5 3′-6″	S6X12.5 3′-6″	S6X12.5 3′-6″	S6X12.5 3′-0″
4′-0″	3″Ø 3′-0″	3″Ø 3′-0″	3″Ø 3′-6″	4″Ø 3′-6″	4″Ø 3′-6″	S4X9.5 3′-6″	S4X9.5 3′-6″	S4X9.5 3′-6″	S4X9.5 4′-0″	S4X9.5 3′-6″	S6X12.5 3′-6″	S6X12.5 3′-6″	S6X12.5 3′-6″	S6X12.5 3′-6″	S6X12.5 3′-6″	S6X12.5 3′-6″	S6X12.5 3′-6″	S6X12.5 3′-6″	S6X12.5 3′-6″	S6X12.5 3′-6″	S6X12.5 3′-6″	S6X12.5 3′-6″	S6X12.5 3′-6″	S6X12.5 3′-6″
5′-0″	3″Ø 3′-0″	3″Ø 3′-0″	4″Ø 3′-6″	4″Ø 3′-6″	5″Ø 3′-6″	S4X9.5 3′-6″	S4X9.5 4′-0″	S4X9.5 4′-0″	S6X12.5 4′-6″	S6X12.5 4′-0″	S6X12.5 3′-0″	S6X12.5 3′-6″	S6X12.5 3′-6″	S6X12.5 3′-6″	S6X12.5 4′-0″	S6X12.5 4′-0″	S6X12.5 3′-6″	S6X12.5 3′-6″	S6X12.5 3′-6″	S6X12.5 4′-0″	S6X12.5 4′-0″	S6X12.5 4′-0″	S6X12.5 4′-0″	S6X17.5 4′-0″
6′-0″	3″Ø 3′-0″	4″Ø 3′-0″	4″Ø 3′-0″	5″Ø 3′-0″	5″Ø 3′-0″	S4X9.5 4′-0″	S6X12.5 4′-0″	S6X12.5 4′-6″	S6X12.5 3′-0″	S6X12.5 3′-6″	S6X12.5 3′-6″	S6X12.5 4′-0″	S6X12.5 4′-0″	S6X12.5 4′-0″	S6X17.5 4′-0″	S6X17.5 4′-0″	S6X12.5 3′-6″	S6X12.5 4′-0″	S6X12.5 4′-0″	S6X17.5 4′-0″	S6X17.5 4′-0″	S6X17.5 4′-0″	S8X18.4 4′-6″	S8X18.4 4′-6″
7′-0″	3″Ø 3′-0″	4″Ø 3′-0″	4″Ø 3′-0″	5″Ø 3′-0″	5″Ø 3′-6″	S6X12.5 4′-0″	S6X12.5 3′-0″	S6X12.5 3′-6″	S6X12.5 3′-6″	S6X12.5 3′-6″	S6X12.5 4′-0″	S6X17.5 4′-0″	S6X17.5 4′-6″	S8X18.4 4′-6″	S8X18.4 4′-6″	S8X18.4 4′-6″	S6X17.5 4′-0″	S6X17.5 4′-0″	S6X17.5 4′-6″	S8X18.4 4′-6″	S8X18.4 4′-6″	S8X18.4 5′-0″	S8X18.4 5′-0″	S8X18.4 5′-0″
8′-0″	3″Ø 3′-0″	4″Ø 3′-0″	5″Ø 3′-0″	5″Ø 3′-6″	6″Ø 4′-0″	S6X12.5 3′-0″	S6X12.5 3′-6″	S6X12.5 3′-6″	S6X12.5 4′-0″	S6X12.5 4′-0″	S6X17.5 4′-6″	S8X18.4 4′-6″	S8X18.4 4′-6″	S8X18.4 5′-0″	S8X18.4 5′-0″	S8X18.4 5′-6″	S8X18.4 4′-6″	S8X18.4 4′-6″	S8X18.4 4′-6″	S8X18.4 5′-0″	S8X18.4 5′-0″	S8X18.4 5′-0″	S8X18.4 5′-6″	S8X18.4 5′-6″
9′-0″	3″Ø 3′-0″	4″Ø 3′-0″	5″Ø 3′-6″	6″Ø 4′-0″	6″Ø 4′-0″	S6X12.5 3′-6″	S6X12.5 3′-6″	S6X12.5 4′-0″	S6X17.5 4′-0″	S6X17.5 4′-6″	S8X18.4 4′-6″	S8X18.4 5′-0″	S8X18.4 5′-0″	S8X18.4 5′-0″	S8X18.4 5′-6″	S8X18.4 5′-6″	S8X18.4 5′-0″	S8X18.4 5′-0″	S8X18.4 5′-0″	S8X18.4 5′-0″	S8X18.4 5′-6″	W10X19.0 5′-6″	W10X19.0 6′-0″	W10X19.0 6′-0″
10′-0″	3″Ø 3′-0″	5″Ø 3′-0″	5″Ø 3′-6″	6″Ø 4′-0″	6″Ø 4′-6″	S6X12.5 3′-6″	S6X12.5 4′-0″	S6X17.5 4′-6″	S6X17.5 4′-6″	S8X18.4 5′-0″	S8X18.4 5′-0″	S8X18.4 5′-6″	S8X18.4 5′-6″	S8X18.4 6′-0″	W10X19.0 6′-0″	W10X19.0 6′-6″	S8X18.4 5′-6″	S8X18.4 5′-6″	S8X18.4 6′-0″	S8X18.4 6′-0″	W10X19.0 6′-0″	W10X19.0 6′-6″	W10X19.0 6′-6″	W10X19.0 6′-6″
11′-0″	4″Ø 3′-0″	5″Ø 3′-0″	6″Ø 3′-6″	6″Ø 4′-6″	8″Ø 5′-0″	S6X12.5 4′-0″	S6X17.5 4′-6″	S6X17.5 4′-6″	S8X18.4 5′-0″	S8X18.4 5′-0″	S8X18.4 5′-6″	S8X18.4 5′-6″	W10X19.0 6′-0″	W10X19.0 6′-0″	W10X19.0 6′-6″	W10X19.0 7′-0″	S8X18.4 5′-6″	S8X18.4 5′-6″	W10X19.0 6′-0″	W10X19.0 6′-0″	W10X19.0 6′-6″	W10X19.0 6′-6″	W10X19.0 7′-0″	W10X22.0 7′-0″
12′-0″	4″Ø 3′-0″	5″Ø 3′-0″	6″Ø 4′-0″	6″Ø 4′-6″	8″Ø 5′-0″	S6X12.5 4′-0″	S6X17.5 4′-6″	S6X18.4 4′-6″	S8X18.4 5′-0″	S8X18.4 5′-0″	S8X18.4 5′-6″	W10X19.0 6′-0″	W10X19.0 6′-0″	W10X19.0 6′-6″	W10X22.0 6′-6″	W10X22.0 7′-0″	W10X19.0 5′-6″	W10X19.0 6′-0″	W10X19.0 6′-0″	W10X19.0 6′-6″	W10X19.0 6′-6″	W10X22.0 6′-6″	W10X22.0 7′-0″	W10X22.0 7′-0″
13′-0″	4″Ø 3′-0″	5″Ø 3′-6″	6″Ø 4′-0″	8″Ø 5′-0″	8″Ø 5′-6″	S6X17.5 4′-0″	S8X18.4 4′-6″	S8X18.4 5′-0″	S8X18.4 5′-0″	S8X18.4 5′-6″	W10X19.0 6′-0″	W10X19.0 6′-0″	W10X19.0 6′-6″	W10X22.0 6′-6″	W10X22.0 7′-0″	W10X22.0 7′-0″	W10X19.0 6′-0″	W10X19.0 6′-0″	W10X19.0 6′-6″	W10X22.0 6′-6″	W10X22.0 7′-0″	W10X22.0 7′-0″	W10X22.0 7′-0″	W10X22.0 7′-6″
14′-0″	4″Ø 3′-0″	5″Ø 3′-6″	6″Ø 4′-6″	8″Ø 5′-0″	8″Ø 5′-6″	S6X17.5 4′-6″	S8X18.4 5′-0″	S8X18.4 5′-0″	S8X18.4 5′-6″	W10X19.0 6′-0″	W10X19.0 6′-0″	W10X19.0 6′-6″	W10X22.0 6′-6″	W10X22.0 7′-0″	W10X26.0 7′-6″	W10X26.0 7′-6″	W10X19.0 6′-6″	W10X22.0 6′-6″	W10X22.0 7′-0″	W10X22.0 7′-0″	W10X22.0 7′-0″	W10X26.0 7′-6″	W10X26.0 7′-6″	W10X30.0 8′-0″
15′-0″	4″Ø 3′-0″	6″Ø 3′-6″	6″Ø 4′-6″	8″Ø 5′-6″	8″Ø 6′-0″	S8X18.4 4′-6″	S8X18.4 5′-0″	S8X18.4 5′-6″	S8X18.4 5′-6″	W10X19.0 6′-0″	W10X19.0 6′-6″	W10X22.0 6′-6″	W10X22.0 7′-0″	W10X26.0 7′-6″	W10X30.0 7′-6″	W10X30.0 8′-0″	W10X22.0 6′-6″	W10X22.0 7′-0″	W10X22.0 7′-0″	W10X26.0 7′-6″	W10X26.0 7′-6″	W10X26.0 7′-6″	W10X30.0 8′-0″	W10X30.0 8′-0″
16′-0″	4″Ø 3′-0″	6″Ø 4′-0″	8″Ø 4′-6″	8″Ø 5′-6″	8″Ø 6′-0″	S8X18.4 5′-0″	S8X18.4 5′-0″	S8X18.4 5′-6″	W10X19.0 6′-0″	W10X19.0 6′-6″	W10X22.0 6′-6″	W10X22.0 7′-0″	W10X26.0 7′-0″	W10X30.0 7′-6″	W10X30.0 8′-0″	W10X30.0 8′-6″	W10X22.0 7′-0″	W10X22.0 7′-0″	W10X26.0 7′-6″	W10X26.0 7′-6″	W10X30.0 8′-0″	W10X30.0 8′-0″	W10X30.0 8′-6″	W10X30.0 8′-6″

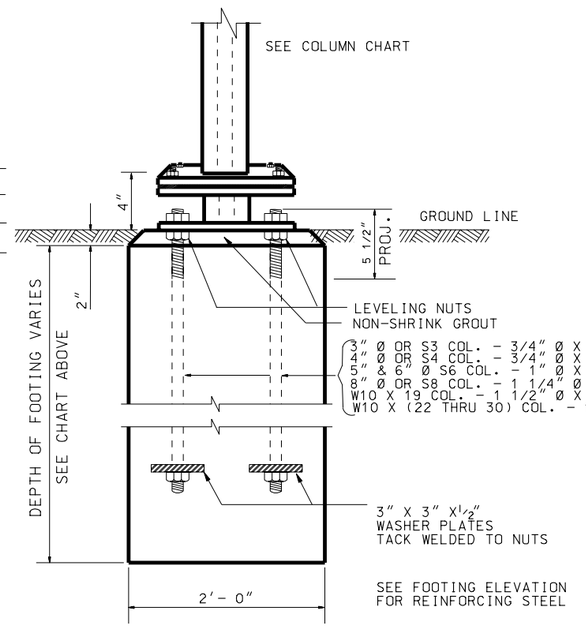
USE 10′ WIDTH IF SIZE FALLS IN THIS AREA

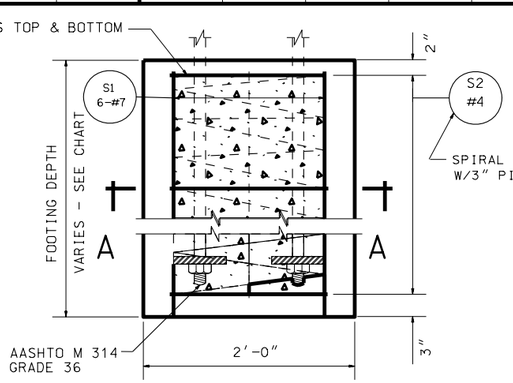
WIDTH W	SPACING FOR POSTS
1′- 5′	ONE POST
6′	1′✱ 4′✱ 1′
7′	1′✱ 5′✱ 1′
8′	1′✱ 6′✱ 1′
9′	1′✱ 7′✱ 1′
10′	1′✱ 8′✱ 1′
11′	1.5′✱ 8′✱ 1.5′
12′	2′✱ 8′✱ 2′
13′	2.5′✱ 8′✱ 2.5′
14′	3′✱ 8′✱ 3′
15′	3.5′✱ 8′✱ 3.5′
16′	4′✱ 8′✱ 4′
17′	1′✱ 7.5′✱ 7.5′ ✱ 1′
18′	1′✱ 8′✱ 8′ ✱ 1′
19′	1.5′✱ 8′✱ 8′ ✱ 1.5′
20′	2′✱ 8′✱ 8′ ✱ 2′
21′	2.5′✱ 8′✱ 8′ ✱ 2.5′
22′	3′✱ 8′✱ 8′ ✱ 3′
23′	3.5′✱ 8′✱ 8′ ✱ 3.5′
24′	4′✱ 8′✱ 8′ ✱ 4′

(✱)REPRESENTS ONE POST



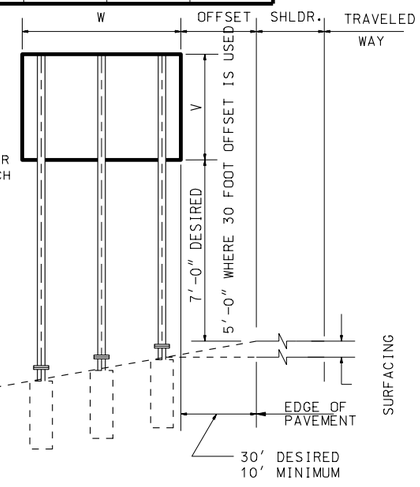
FOOTING DETAILS



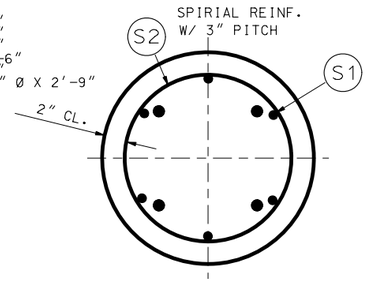


FOOTING ELEVATION

BAR	LENGTH
S1	FOOTING DEPTH MINUS 2″
S2	1′-8″ OUTSIDE DIAMETER



REAR ELEVATION



SECTION A - A

NOTES:

1. ENTER CHART WITH KNOWN HORIZONTAL AND VERTICAL DIMENSIONS OF SIGN. PROCEED HORIZONTALLY AND VERTICALLY FROM GIVEN DIMENSIONS TO INTERSECTING SQUARE WHICH GIVES IN ORDER, TOP: NUMBER, SIZE AND WEIGHT OF SUPPORT SECTION OR OF STANDARD STRENGTH PIPE COLUMNS. BOTTOM: MINIMUM REQUIRED DEPTH OF FOOTING.
2. SEE STD DWG SN 12B FOR MATERIAL SPECIFICATIONS NOT GIVEN AND GENERAL NOTES.
3. DO NOT ATTACH SIGNS BELOW HINGE POINT.

REVISIONS			
NO.	DATE	APPR.	REMARKS
1	08/25/05	B.W.	REVISED/CLARIFIED FOUNDATION REINFORCING STEEL.

UTAH DEPARTMENT OF TRANSPORTATION

STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION

SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — AUG.25,2005 DATE

CHAIRMAN STANDARDS COMMITTEE APPROVED — AUG.25,2005 DATE

DEPUTY DIRECTOR

GROUND MOUNTED SIGN INSTALLATION DETAILS

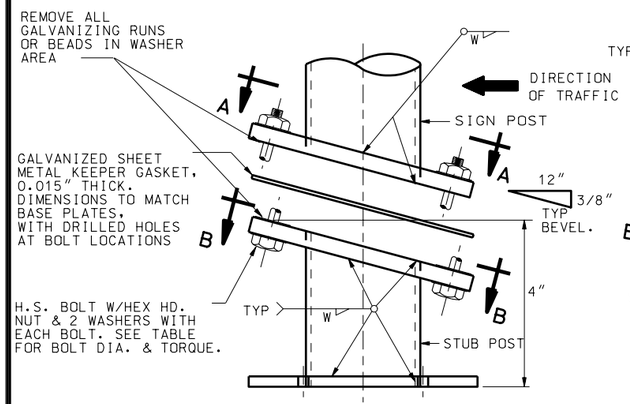
STANDARD DRAWING TITLE

STD DWG

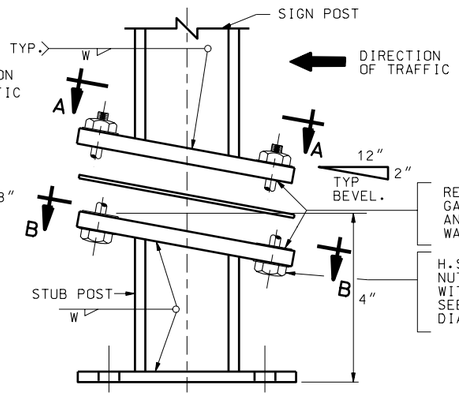
SN 12A

DGN File:L:\Standard Drawings\Imperial\2005Approved\xChange4Approved\sn12a.dgn

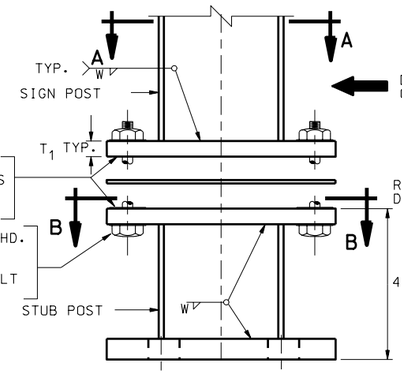
06-SEP-2005



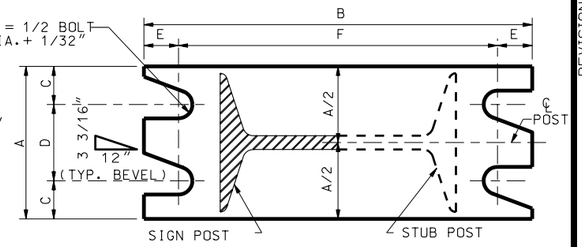
SIGN POST & STUB POST ELEVATION
(FOR PIPE COLUMNS)



SIGN POST & STUB POST ELEVATION
(FOR S3 & S4 SECTIONS)



SIGN POST & STUB POST ELEVATION
(FOR S6, S8 & W10 SECTIONS)



SECTION A–A SECTION B–B
(SEE TABLE FOR DIMENSIONS)

SECTIONS SHOWN ARE FOR INSTALLATIONS ON RIGHT SHOULDER AND IN GORE. PLATE SLOT BEVELS ARE OPPOSITE HAND FROM THAT SHOWN FOR INSTALLATION ON LEFT SHOULDER "S" POST IS SHOWN. PIPE POST SELECTIONS ARE SIMILAR.

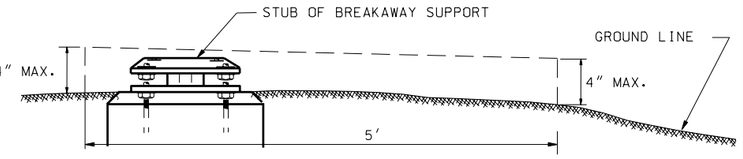
BASE CONNECTION DATA TABLE

POST SIZE	BOLT SIZE & TORQUE	A	B	C	D	E	F	T_1	W
S3 X 5.7	1/2" DIA.X 2 1/2" 10 FT.-LB. TORQUE	3"	7 1/2"	3/4"	1 1/2"	3/4"	6"	5/8"	3/16"
S4 X 9.5		3 1/2"	7 1/2"	3/4"	2"	3/4"	6"	5/8"	1/4"
S6 X 12.5	5/8" DIA. X 3" 24 FT.-LB. TORQUE	4 1/2"	10"	1 1/8"	2 1/4"	3/4"	8 1/2"	3/4"	5/16"
S6 X 17.5		4 1/2"	10"	1 1/8"	2 1/4"	3/4"	8 1/2"	3/4"	5/16"
S8 X 18.4		5"	12"	1 1/8"	2 3/4"	3/4"	10 1/2"	3/4"	5/16"
W10 X 19.0	3/4" DIA.X 3 1/2" 38 FT.-LB. TORQUE	6"	1'-2 1/2"	1 1/4"	3 1/2"	7/8"	1'-0 3/4"	1"	5/16"
W10 X 22.0		7"	1'-3"	1 1/2"	4"	7/8"	1'-1 1/4"	1"	5/16"
W10 X 26.0		7"	1'-3"	1 1/2"	4"	7/8"	1'-1 1/4"	1"	5/16"
W10 X 30.0	1" DIA.X 3 1/2" 51 FT.-LB. TORQUE	7"	1'-3"	1 1/2"	4"	7/8"	1' 1 1/4"	1 1/8"	5/16"
3" DIA. STD. PIPE	1/2" DIA.X 2 1/2" 10 FT.-LB. TORQUE	4 1/2"	7 1/2"	1"	2 1/2"	3/4"	6"	3/4"	1/4"
4" DIA. STD. PIPE		5 1/2"	8 1/2"	1"	3 1/2"	3/4"	7"	3/4"	1/4"
5" DIA. STD. PIPE	5/8" DIA.X 3 1/2" 24 FT.-LB. TORQUE	6 1/2"	10 1/4"	1 1/4"	4"	7/8"	8 1/2"	1"	1/4"
6" DIA. STD. PIPE		7 1/2"	11 1/2"	1 1/4"	5"	7/8"	9 3/4"	1"	5/16"
8" DIA. STD. PIPE		9 1/2"	1'-2"	1 1/4"	7"	7/8"	1'-0 1/4"	1"	5/16"

FUSE PLATE DATA TABLE

F	G	H	J	K	L	N	T_2	D_1	BOLT DIA.
3 7/16"	2 1/4"	1 1/8"	2 3/8"	1 1/2"	7/16"	1/2"	1/4"	9/16"	1/2"
3 7/16"	2 1/4"	1 1/8"	2 3/4"	1 1/2"	5/8"	1/2"	5/16"	9/16"	1/2"
4 3/8"	2 1/2"	1 1/4"	3 3/8"	2"	11/16"	5/8"	3/8"	9/16"	1/2"
4 3/8"	2 1/2"	1 1/4"	3 5/8"	2"	13/16"	5/8"	3/8"	11/16"	5/8"
4 3/8"	2 1/2"	1 1/4"	4"	2 1/4"	7/8"	5/8"	7/16"	13/16"	3/4"
6"	3"	1 1/2"	4"	2 1/4"	7/8"	3/4"	3/8"	15/16"	3/4"
6"	3"	1 1/2"	5 3/4"	3 3/4"	1"	7/8"	3/8"	15/16"	7/8"
6"	3"	1 1/2"	5 3/4"	3 3/4"	1"	7/8"	7/16"	15/16"	7/8"
6"	3"	1 1/2"	5 3/4"	3 3/4"	1"	7/8"	1/2"	15/16"	7/8"

NO FUSE PLATE REQUIRED ON PIPE COLUMN

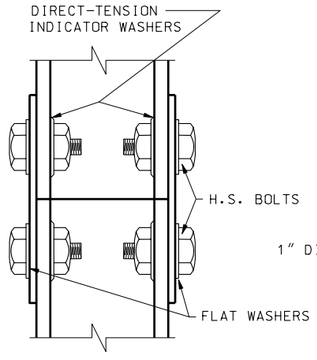


PLACE SIGN SUPPORT FOUNDATION SO IMPACTING VEHICLES DO NOT SNAG ON EITHER FOUNDATION OR ANY SUBSTANTIAL REMAINS OF SIGN SUPPORT. GRADE SURROUNDING TERRAIN TO PERMIT IMPACTING VEHICLES TO PASS OVER FOUNDATION AND PORTIONS OF SIGN SUPPORTS WHICH REMAIN IN THE GROUND OR ARE RIGIDLY ATTACHED TO THE FOUNDATION.

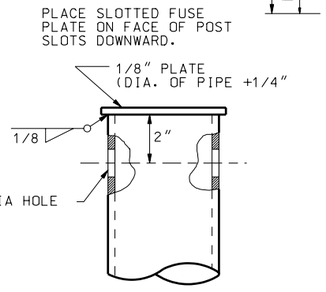
BREAKAWAY SUPPORT STUB HEIGHT MEASUREMENT

GENERAL NOTES:

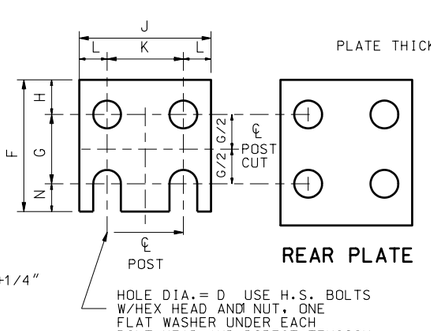
1. CONFORM TO THE LATEST EDITION OF AASHTO STANDARD SPECIFICATION FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS.
2. FABRICATE BASE, SLIP AND FUSE PLATES FROM STEEL MEETING THE REQUIREMENTS SPECIFIED FOR THE SIGN POST TO WHICH THEY ARE ATTACHED EXCEPT WHERE PIPE POST ARE USED. IN WHICH CASE CONFORM TO THE REQUIREMENTS OF ASTM A 36.
3. USE STRUCTURAL STEEL THAT IS STRUCTURAL CARBON STEEL CONFORMING TO THE FOLLOWING ASTM DESIGNATIONS: STANDARD PIPE 3"–8" DIA. ASTM A 53 GRADE B. W AND S SHAPES ASTM A 36.
4. USE BOLTS, NUTS AND WASHERS CONFORMING TO ASTM A 325 AND CADMIUM ELECTRO PLATING CONFORMING TO ASTM A 165 NS.
5. WELD TO THE REQUIREMENTS OF THE AASHTO STANDARD SPECIFICATION FOR WELDING OF STRUCTURAL STEEL HIGHWAY BRIDGES.
6. SAW CUTTING ALL PLATE CUTS IS PREFERRED. FLAME CUTTING WILL BE PERMITTED PROVIDED ALL EDGES ARE GROUND. METAL PROJECTING BEYOND THE PLATE FACE WILL NOT BE TOLERATED.
7. GALVANIZE ALL STRUCTURAL STEEL AFTER FABRICATION IN CONFORMANCE TO AASHTO M 111 (ASTM A 123).
8. TIGHTEN HIGH STRENGTH BOLTS IN THE BASE CONNECTION ONLY TO THE TORQUE LIMITS SHOWN IN THE TABLE. DO NOT OVER TIGHTEN.
9. TIGHTEN ALL HIGH STRENGTH FRICTION FUSE BOLTS IN THE SHOP. USE DIRECT-TENSION INDICATOR WASHERS TO TIGHTEN THE BOLTS. SEE STANDARD SPECIFICATION SECTION 05120.
10. MOUNT ALL SIGNS DESIGNATED FOR MOUNTING WITH BREAKAWAY BASES ON UNDIVIDED HIGHWAYS OR ON DIVIDED HIGHWAYS OF LESS THAN FOUR LANES WITH BREAKAWAYS PLATES PARALLEL TO THE BASE PLATES.



DETAIL "A" HINGE

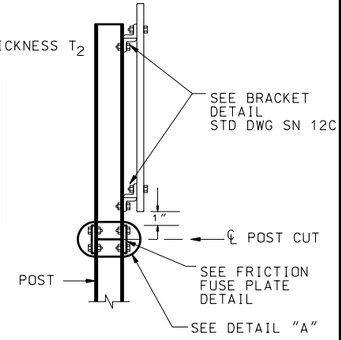


TOP OF PIPE DETAIL



REAR PLATE

FACE PLATE



SIDE VIEW

FUSE PLATE DETAIL
(SEE TABLE FOR DIMENSIONS)

REVISIONS

NO.	DATE	APPR.	REMARKS

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — DATE JAN.01.2005
CHAIRMAN STANDARDS COMMITTEE
APPROVED — DATE JAN.01.2005
DEPUTY DIRECTOR

GROUND MOUNTED SIGN INSTALLATION DETAILS

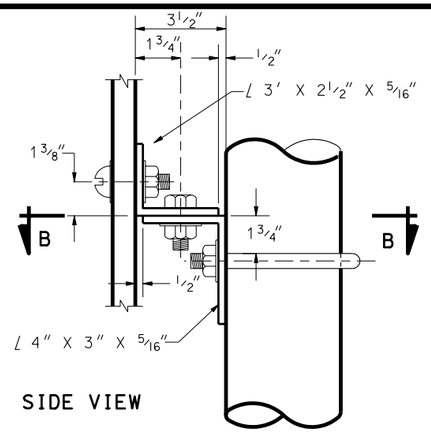
STANDARD DRAWING TITLE

STD DWG
SN 12B

DGN File: N:\Esd\Standard Drawings\Imperial\2005Approved\Signs (SN)\sn12b.dgn
15-DEC-2004

NOTES:

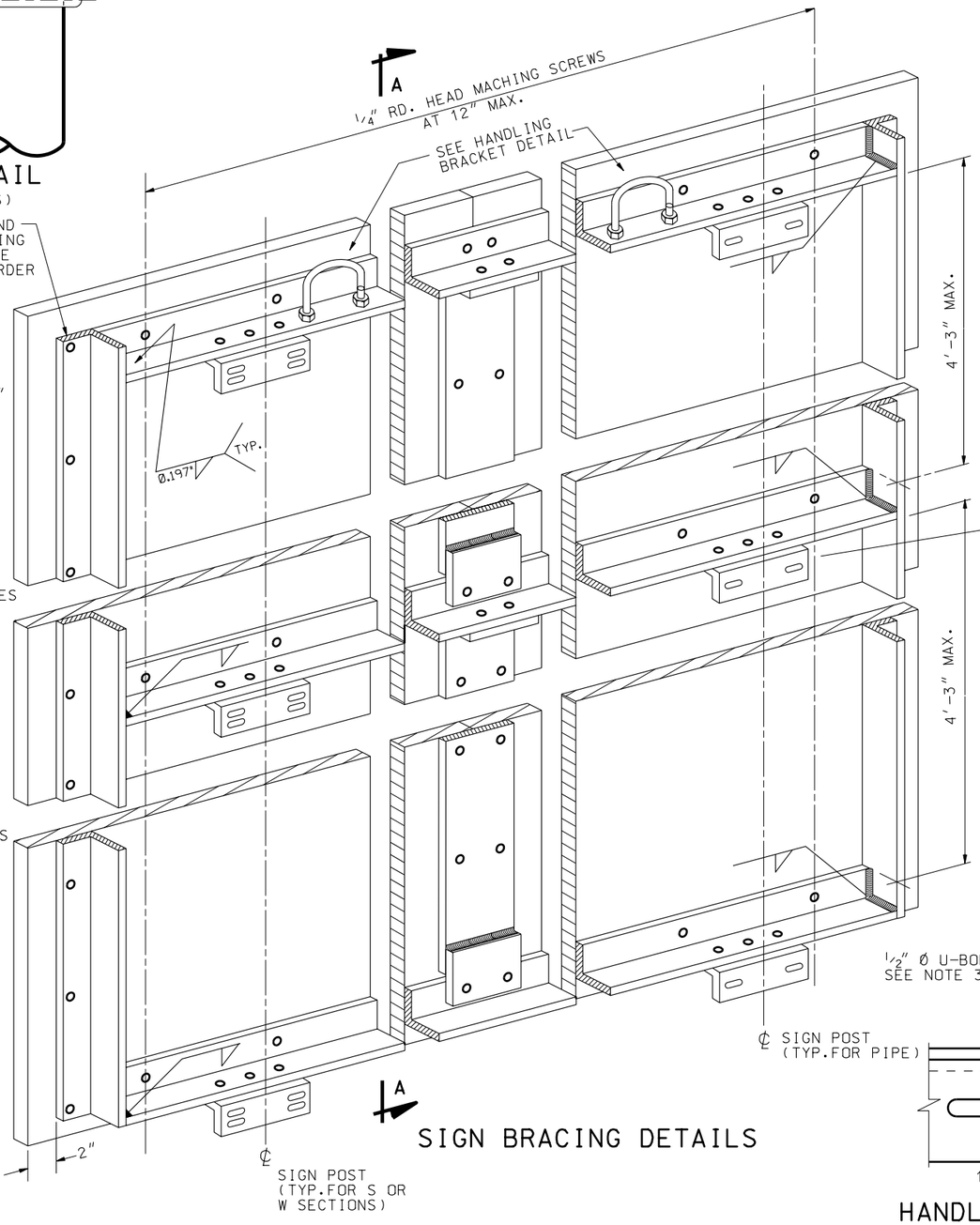
1. SEE STD DWG SN 12B FOR GENERAL NOTES.
2. USE 18-8 STAINLESS STEEL FOR THE 1/4" R.H. MACHINE SCREWS AND WASHERS AND THE 3/8" BOLTS AND WASHERS USED ON THE SIGN FACE. USE CADMIUM ELECTROPLATING CONFORMING TO ASTM B 766 FOR ALL OTHER BOLTS, NUTS AND WASHERS.
3. SHOP GALVANIZE THE ENTIRE SIGN BRACING ASSEMBLY, STEEL SIGN POST AND U-BOLTS TO MEET AASHTO M 111 (ASTM A 123).
4. USE ASTM A 107, GRADE 1020 MERCHANT QUALITY FOR U-BOLT.
5. USE BOTH 1/4" FLAT WASHERS AND 1/4" LOCK WASHERS ON ALL 1/4" R.H. SCREWS. USE LOCK WASHERS ON ALL BOLTS.



SIDE VIEW

BRACKET DETAIL

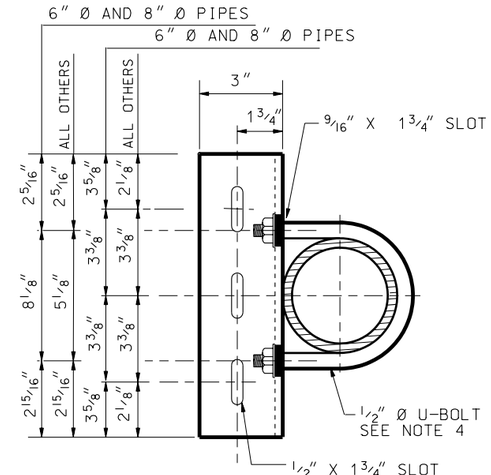
(FOR PIPE COLUMNS)



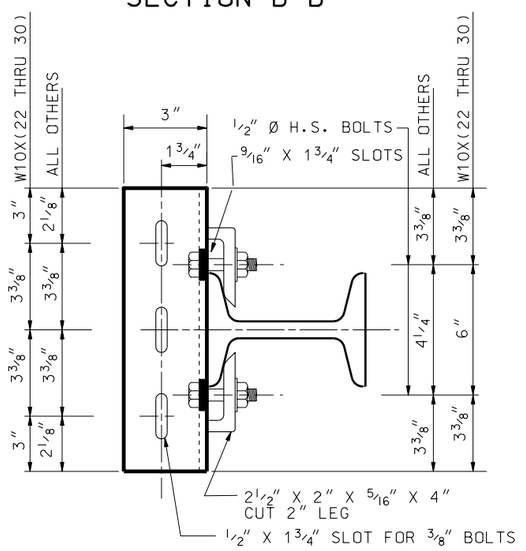
SIGN BRACING DETAILS

PLACE CORNER SCREWS AS NEAR THE END OF THE ANGLE AS POSSIBLE MAINTAINING A 1/2" CLEARANCE FROM THE ANGLE EDGE AND AVOIDING CONFLICT WITH THE BORDER MAETRIAL.

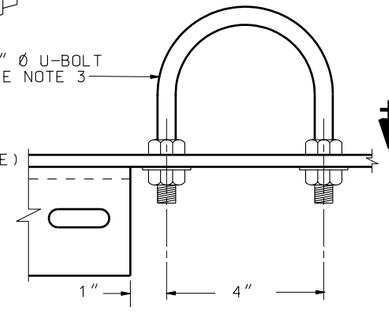
SECTION A-A



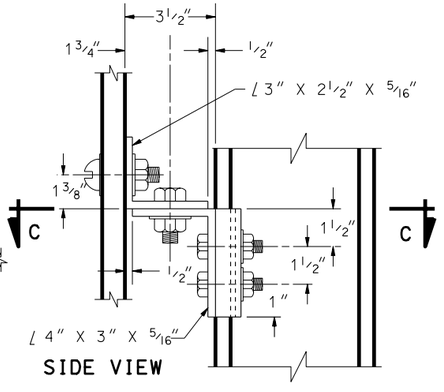
SECTION B-B



SECTION C-C



HANDLING BRACKET DETAIL



SIDE VIEW

BRACKET DETAIL

(FOR S OR W COLUMNS)

REVISIONS

NO.	DATE	APPR.	REMARKS

UTAH DEPARTMENT OF TRANSPORTATION

STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION

RECOMMENDED FOR APPROVAL — JAN.01.2005 DATE

CHAIRMAN STANDARDS COMMITTEE APPROVED — JAN.01.2005 DATE

DEPUTY DIRECTOR

GROUND MOUNTED SIGN INSTALLATION DETAILS

STANDARD DRAWING TITLE

STD DWG SN 12C

DGN File:N:\Esd\Standard_Drawings\Imperial\2005Approved\Signs (SN)\sn12c.dgn

15-DEC-2004

2005 STANDARD DRAWINGS

END OF DRAWING BOOK PART 5